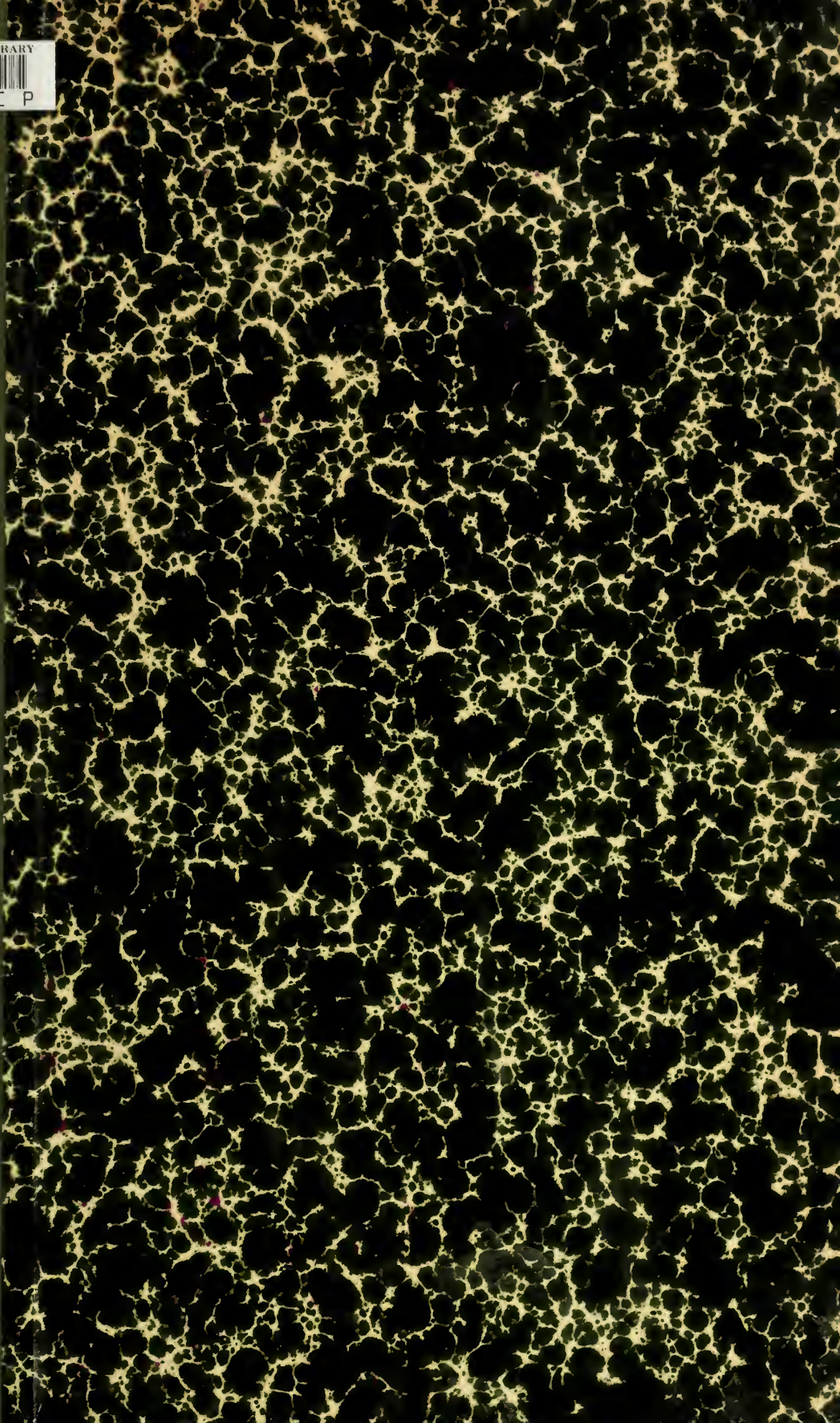


COUNTWAY LIBRARY



HC 314E P



BOSTON  
MEDICAL LIBRARY  
8 THE FENWAY









# THE JOURNAL OF THE TENNESSEE

## State Medical Association

Owned, Published and Controlled by the Tennessee State Medical Association

ISSUED MONTHLY under Direction of the Trustees

H. H. SHOULDERS, M.D., Secretary and Editor

OFFICE OF PUBLICATION, 510 DOCTORS BUILDING, NASHVILLE, TENNESSEE

Vol. XXVIII  
Number 1

JANUARY, 1935

Single Copy, 20 Cents  
Per Year, \$2.00

### CONTENTS

|                                                                                              |    |                                                                                                             |    |
|----------------------------------------------------------------------------------------------|----|-------------------------------------------------------------------------------------------------------------|----|
| PURULENT PLEURITIS IN CHILDREN—Oliver W. Hill, M.D., Knoxville.....                          | 1  | ABDOMINAL PAIN OFTEN A SYMPTOM REFERRABLE TO THE KIDNEY—Geo. R. Livermore, M.D., F.A.C.S., Memphis.....     | 27 |
| BLACK WIDOW SPIDER BITE: REPORT OF FOUR CASES—Joe B. Wright, M.D., Lynnville.....            | 6  | UNDISTORTED RADIOGRAPHY IN OBSTETRICS—Edward F. Buchner, M.D., Chattanooga.....                             | 30 |
| A PATHOLOGIC BASIS FOR THE DISABLED BACK—George K. Carpenter, M.D., F.A.C.S., Nashville..... | 8  | A GROUP OF DISEASES DEPENDENT UPON PARANASAL SINUSITIS AS THE CAUSE—N. E. Hartsook, M.D., Johnson City..... | 32 |
| A DAY IN COURT—J. K. Hall, M.D., Richmond, Virginia.....                                     | 14 | EDITORIAL.....                                                                                              | 38 |
| URINARY UROBILINOGEN: VALUE OF ROUTINE ESTIMATION—P. H. Levinson, M.D., Chattanooga.....     | 17 | DEATHS—WOMAN'S AUXILIARY.....                                                                               | 40 |
| OPTIC ATROPHY DUE TO CHIASMAL TUMOR—Ralph O. Rychener, A.B., M.D., Memphis.....              | 20 | NEWS NOTES AND COMMENTS.....                                                                                | 41 |
| MANAGEMENT OF PUERPERAL ECLAMPSIA IN THE HOME—K. S. Howlett, M.D., Franklin.....             | 22 | LIST OF OFFICERS OF THE TENNESSEE STATE MEDICAL ASSOCIATION.....                                            | 42 |
|                                                                                              |    | MEDICAL SOCIETIES.....                                                                                      | 43 |
|                                                                                              |    | ABSTRACTS OF CURRENT LITERATURE.....                                                                        | 44 |

THIS ASSOCIATION DOES NOT OFFICIALLY INDORSE OPINIONS PRESENTED IN DIFFERENT PAPERS PUBLISHED HEREIN  
ENTERED AS SECOND-CLASS MATTER, MAY 29, 1908, AT THE POST OFFICE AT NASHVILLE, TENN., UNDER THE ACT OF MARCH 3, 1879.



## ACCEPTED

### EFFICIENT SOURCE OF VITAMINS B and G

MEAD'S BREWERS YEAST is rich in vitamins B and G, known for their antineuritic and antipellagric properties, and nutritional essentials necessary in abundance for normal appetite and growth. Hence, it is especially valuable for supplementing diets of pregnant and nursing mothers and for breast- and bottle-fed infants, also in anorexia and malnutrition due to an insufficiency of vitamins B and G.

Weight for weight, Mead's Brewers Yeast offers  $5\frac{1}{2}$  times as much actual yeast as does wet cake yeast, besides having a higher vitamin content. In vitamin B potency one cake of yeast is the equivalent of 1.27 Mead's Brewers Yeast Tablets, and in vitamin G content one cake equals 1.65 tablets.

Mead's Brewers Yeast is advertised only to physicians, without dosage directions or package circulars. Servamus Fidem—"We Are Keeping the Faith."

**MEAD JOHNSON & CO. Evansville, Ind.**

Please enclose professional card when requesting samples of Mead Johnson products to cooperate in preventing their reaching unauthorized persons



32240

# Dilaudid

(dihydromorphinone hydrochloride)

Council Accepted

## In place of Morphine

### DOSE:

Oral, subcutaneous and rectal.

For Pain: 1/48 to 1/16 grain

For Cough: 1/64 to 1/32 grain

The dose of Dilaudid is about 1/5 that of morphine, that is, 1/20 gr. Dilaudid is generally equal to 1/4 gr. morphine in analgesic effect.

Dilaudid is made in U. S. A.

**For Pain** - - In inoperable carcinoma, terminal tuberculosis and other conditions requiring extended analgesia. In renal colic, tabetic crises, and angina pectoris.

**In Surgery** - - Pre-operatively, as an adjunct to anesthesia and post-operatively. Less likely to cause nausea or constipation than morphine; a stronger analgesic with a less pronounced soporific action.

**In Obstetrics** - - For pain during labor or post-partum. Very soluble, acts quickly.

For trial package send your Federal Narcotic Order Form for 1x20 H. T. 1 20 gr. and 1x10 O. T. 1 1/24 gr. Dilaudid

**BILHUBER-KNOLL CORP.** - - 154 Ogden Avenue  
JERSEY CITY, N. J.

## THE CINCINNATI SANITARIUM

Established  
More Than  
Fifty Years  
Ago



A Private  
Hospital for  
Nervous and  
Mental  
Diseases

Secluded, but easily accessible. Constant medical supervision. Registered charge nurses. Complete laboratory and hydrotherapy equipment. Dental Department for examination and treatment. Occupational Therapy. Ample classification facilities. Thirty acres in lawns and park.

Charles Kiely, M.D., Emerson A. North, M.D.-----Visiting Consultants  
D. A. Johnston, M.D.-----Resident Medical Director

### REST COTTAGE

This psychoneurotic unit is a complete and separate hospital building, elaborate in furnishings and fixtures.

For Terms, Apply to

**THE CINCINNATI SANITARIUM**

COLLEGE HILL, CINCINNATI, OHIO



# THE JOURNAL

OF THE

## TENNESSEE STATE MEDICAL ASSOCIATION

DEVOTED TO THE INTERESTS OF THE MEDICAL PROFESSION OF TENNESSEE

ISSUED MONTHLY, Under Direction of the Trustees

H. H. SHOULDERS, M.D., Secretary and Editor

W. M. HARDY, M.D., Asst. Secretary-Editor

OFFICE OF PUBLICATION, 510 DOCTORS BUILDING, NASHVILLE, TENNESSEE

Volume XXVIII

JANUARY, 1935

No. 1

### PURULENT PLEURITIS IN CHILDREN\*

OLIVER W. HILL, M.D., Knoxville

I AM SENSIBLE to the fact that this title is a hackneyed subject, in fact, threadbare to some of you, but, when one reviews this voluminous literature and statistics of mortality, we must concede that it is still a very important and interesting disease, and evidently much is to be learned about it.

The high mortality from empyema in children under two years of age, and especially under one year of age, runs as a refrain the statistical reports in the past years. The following table is an example:

| Hospital                                   | Mortality |          |
|--------------------------------------------|-----------|----------|
|                                            | Period    | Per Cent |
| Baby's Hospital, New York                  | 1903-1913 | 37.8     |
| Bellevue Hospital, New York                | 1920-1924 | 34.8     |
| Children's Hospital, Boston, prior to 1924 |           | 35.0     |
| Johns Hopkins Hospital                     | 1889-1927 | 29.6     |
| Johns Hopkins Hospital                     | 1927-1929 | 22.2     |

We were prompted to present this paper by the fact that with a series of cases seen in our own practice and in consultation, the mortality was so much lower, we were convinced that our procedure has some merit. Please understand that we do not claim originality or that this method (repeated aspiration followed by intercostal insertion of a rubber tube when the aspirations do not relieve within a reasonable time) is the only one to be employed, we are simply delineating to you the method we used in thirty-one cases over a period of seven years with one death. This one death was not

directly connected with the empyema, as the child was a cardio nephritic, and died from cardiac failure several weeks later, after apparent recovery.

Infections of the pleura in infants and young children present many problems that differ materially from those encountered in adults, especially as to causation and to management. This fact has been recognized for many years, and, as such, presents many diverse problems to the physician and surgeon. It seems strange that, in the light of later knowledge, many results of new and various treatment have been reported without regard to the age of the patient involved. That this information is of great value is evidenced by the fact that the mortality from empyema is about four times greater during the first year of life than in the fourth or fifth.

I will not discuss the bacterial phases as time is too limited, but will devote the time to diagnosis and management.

The value of eliciting an accurate history cannot be overemphasized. One can many times, by a carefully obtained history of a case, reach conclusions that are tantamount in establishing the diagnosis. The familiar story is that of pneumonia with its characteristic symptoms of a cough, sputum, and fever. The temperature subsides usually within a week or ten days either by crisis or lysis, and, some time later, there is a recurrence of fever. The little fellow is usually not actually ill following pneumonia, the most prominent

\*Read before the Tennessee State Medical Association, Chattanooga, April 10, 11, 12, 1934.

symptom is a persistent fever of an irregular type.

Empyema in an infant or a young child is to be considered somewhat differently from that in an adult. The vital capacity in a young child is so small that a moderate collection of pus or a fair-sized pneumothorax seriously interferes with proper oxygenation, and the latter, in particular, can easily lead to a fatal asphyxia. Then, too, the mediastinal structures forming a septum between the right and left chests are very lax in the child, so that an influx of air into one chest, causing collapse of that lung, will push over the mediastinum and seriously embarrass the opposite lung and the circulation. It is probable, too, that early adhesions in a child are even more delicate than in the adult, and are much more easily ruptured with wide lung collapse, if much pressure is brought to bear on the walled-off area.

Physical examination is a very important factor in determining the type of treatment to be instituted. Only a few features will be referred to in this paper. Close attention should be given to the general examination, even when an empyema is obvious.

The customary physical signs of fluid in the pleural space requires no extended discussion. Flatness on light percussion is by far the most significant one, in our opinion. Similarly, light percussion may demonstrate the presence of tympany (and therefore of a ruptured abscess of the lung) even in the absence of any auscultatory signs of pneumothorax. Inspection of the chest will often furnish valuable data. In addition to the commonly observed limited expansion of the affected side, the intercostal spaces often bulge with large amounts of fluid. This, together with a visibly displaced apical impulse, dyspnea differentiation between localized pyopneumothorax, and abscess of the lung is common evidence. The X-ray film and fluoroscopy are of unquestionable and sometimes of decisive aid, but should be considered in correlation with clinical data and not as independent diagnostic measures.

The diagnosis of empyema in referred cases is rarely difficult, as the symptoms and signs are usually definite before the

patient is sent in. In this series of thirty-one cases, none originated in the hospital. Since the disease rarely occurs as a primary lesion, a careful history must be obtained, paying special attention to the possibility of an antecedent pneumonia. A history of broncho or lobar pneumonia was obtained in twenty-six of our cases, two followed influenza, and one measles; so, in twenty-nine, pneumonia was probably the preceding disease. In examination, inspection in a good light with the chest completely stripped of clothing and adhesive is important. In the early cases, there is always decreased expansion on the affected side, and in the late cases, with bulging of the side, expansion is practically absent. The affected, bulging side, however, may easily mislead one to consider the decreased expansion present in the non-diseased side. Diminished or absent breath sounds and fremitus (impaired percussion note, with a definite flat note on stiff finger percussion), are invariably present if the fluid is abundant. These and displaced apex beat to the opposite side are the outstanding findings. Fluoroscopic and roentgenographic study should not be omitted, and they are of special value in diagnos-



Fig. I.



ing the interlobar, mediastinal, and supradiaphragmatic collections. If the possibility of atelectasis, and foreign body with its varied physical signs, is always considered in the history, examination, and X-ray, there may be less chagrin for the diagnostician and possibly there will be fewer unnecessary punctures. However, many times, punctures are necessary to confirm diagnosis and are neither very dangerous or injurious when carefully done.

A film of the chest with the child in a supine or prone position may be negative because the fluid is dispersed in a thin layer over the entire surface of the lung, and is therefore of insufficient density to cast a shadow. There is, in addition, much distortion in films taken with a child lying down. In a number of our postoperative cases the films indicate that the chest was free from fluid when the child was in a recumbent position, and a large collection with fluid level was apparent when the picture was taken with the child in the erect position. Another discrepancy for which we can offer no explanation is a negative film, even though properly taken, in a proved case of empyema. We have seen several instances in which the films taken shortly before operation were negative, and in which a frank empyema was encountered at operation. The differentiation of pleural thickening from pleural effusion is often difficult in X-ray films, especially when fluid is not present in large amounts. Pleural thickening is to be suspected when the medial border of the shadow presents a more or less straight line, whereas the shadows cast by most diffuse (not encapsulated) pleural effusions present a concave border. It is not infrequently impossible to determine from X-ray films which condition is present in doubtful cases, and far greater reliance should therefore be placed on the clinical aspects. This statement holds true particularly after drainage of an empyema, when retention of pus in the region of the operative field is suspected.

We have made a number of errors in the roentgenographic interpretation. One film I will show as an example.

When diagnosed, the surgical treatment has a threefold objective: (1) To relieve

mechanical pressure; (2) to overcome the sepsis; (3) to re-expand the lung and obliterate the pleural space. The essential step is early and adequate drainage of the pleural cavity. In years gone by, however, many lives were needlessly sacrificed by resorting to immediate open thoracotomy as soon as exploratory puncture demonstrated pleural sac. As a result of experience in the World War, and the studies made at that time by the Empyema Commission of the United States Army, the cardinal principle was established, to keep the invaded pleural cavity closed until such a time as the mediastinum might become fixed by the splinting of lymphatic deposits. In this way the dangers attendant upon pneumothorax, namely, reduction in vital capacity, venous stasis, flapping of the mediastinum, and disturbance of cardiac action, are minimized. Delay also gives the patient an opportunity to tide over the initial shock of the pleural invasion, to recover from the primary pneumonia, to build up a better resistance, and even focalize the infection in the pleura. Just when the mediastinum becomes fixed is not always clear. It seems to be coincident with the formation of frank pus.



Fig. II.

In the interim, aspiration of the fluid should be carried out frequently enough to relieve mechanical pressure. Davies advises replacement of the aspirated fluid simultaneously by oxygen, thus producing an artificial pneumothorax as advocated forty years ago by Forlanini. In infancy and childhood, repeated aspiration will usually serve to cure the disease, but for older children and adults it does not seem to be so successful.

After pus has formed, if aspiration treatment has failed, two other methods of procedure are available: (1) Closed drainage; (2) open drainage, without or with rib resection.

In closed drainage a catheter is inserted with the aid of a trocar and cannula through a dependent intercostal space, usually the seventh or eighth, near the posterior axillary line, or in the case of localized empyema, at its dependent angle. Dressing is applied snugly to seal off the tract so that pleural contents will not leak out externally. This is done with a piece of rubber tissue with a small hole for the catheter. The catheter is fastened in a closed circuit so that it drains either intermittently or continuously with or without the aid of suction. To aid in the evacuation of fluid and irrigation of the pleural cavity, elaborate apparatus, such as that of Hart, has been assembled. These seem to be more complicated than is needful, and to require more intimate attention on the part of the doctors and nurses than is usually available. A greater efficiency is claimed for them, so that the course of the disease is shortened, and a permanency of the cure is assured. Published results, however, have not been conclusive of their greater value. Our results with the simple catheter drainage held by a safety pin were such that we saw no reason for resorting to the more complicated procedure.

At any time that a patient with closed drainage is not progressing satisfactorily, we resort to open drainage without undue delay. This was necessary in only one case. In the average case, defervescence and loss of toxic symptoms should occur within two weeks, and complete recovery within two months. Persistence of symptoms beyond

this time suggests inadequacy of the method, the presence of a localized abscess or other complications.

Complete removal of pus by aspiration is mechanically possible with air replacement, and we have frequently seen the roentgen evidence of complete evacuation of any empyema cavity by this procedure. Our routine at first was the withdrawal of pus and allowing the natural intake of air, reasoning as follows:

Air creates a positive pressure. This produces immobilization and compression of the lung, with elimination of pulmonary tension, and, therefore, rest and healing.

Air is slowly absorbed. A negative pressure is gradually restored in the intrapleural cavity, exerting a steady traction force on the lung and permitting gradual re-expansion of the lung with eventual pleural contact.

Air prevents rapid changes in intrapleural pressure with their sequelae, edema of the lung, pain, cough, and cardiac changes.

Air keeps the visceral and the parietal pleura separated until the inflammation subsides; thus adhesions do not occur or are slight in extent.



Fig. III.

The natural mechanism of defense in exudative pleurisy is the separation of pleura and the compression of the lung. Air replacement maintains this mechanism.

Finally, this procedure may shorten the term of illness by preventing the exit of infective material from the compressed lung.

In the latter part of the series we used metaphen 1 2500 aqueous solution, injecting from 10 cc. to 20 cc. after removing as much pus as possible. We were not able to decide if it was of any benefit with the small number of cases, but we are certain that it did no harm and we thought influenced the temperature.

We of course know that comparative statistics, to be of full value as a measure of efficacy of any method of treatment, require a detailed report of each case. This is not feasible in this treatise, due to the dearth of time, space, and energy. We had one case that had only one aspiration and one that had twenty-eight aspirations, representing two extremes. The average was ten.

With one death over a period of years, we are encouraged to feel that young children do better with aspirations alone or with the so-called closed method than with the open method. If our series covered only one or two years, we might feel that it was

the type of infection and some other year might make an entirely different picture, but as I said in the beginning, this covers a period of seven years. Nearly all of these patients have been followed up to the time of this report, and so far as we know, there has been no recurrence of empyema owing to an undrained or unabsorbed residue of pus. A dropping of the shoulder and a sinking-in of the chest in a varying degree is usually present, but does not persist and has invariably disappeared within the year.

#### BIBLIOGRAPHY

1. Packard, Geo. B., Jr. "Empyema in Children." *Surg., Gynec. and Obst.*, August, 1931.
2. Neuhof, Harold, and Hirschfield, Samuel. "Suppurative Pleuritis in Children." *Am. J. Dis. Children*, November, 1932.
3. Willis, Byrd Charles. "The Diagnosis and Treatment of Empyema in Children."
4. Decker, Ryerson H. "Treatment of Empyema Thoracis." *Pa. Medical Journal*, January, 1931.
5. McEachern, J. D., Chief Surgeon, Winnepeg Children's Hospital. "The Treatment of Acute Empyema in Infancy and Childhood." *British J. of Surgery*, April, 1933.
6. Farr, Chas. E., and Levine, Milton I. "Empyema in Children." *Surg., Gynec. and Obst.*, January, 1928.
7. Bloch, Harry, and Parrish, Paul L. "Treatment of Children and Infants by Aspiration of Pus and Air Replacement." *Am. J. Dis. Children*, September, 1933.



## BLACK WIDOW SPIDER BITE: REPORT OF FOUR CASES\*

JOE B. WRIGHT, M.D., Lynnville

IN APPEARANCE the black widow spider is very much like the ordinary black spider except that it has a red spot in the center of its back. Its body resembles an oversized shoe button. It is about one-half inch long and one-fourth inch wide. It gets the name "black widow" from the fact that it kills and devours its mate.

It is common knowledge that spiders are poisonous insects. It is asserted by an authority that "drop for drop" the poison of the black widow spider is more deadly than rattlesnake venom.

The black widow spider is common in Tennessee. It may be found in fields, in woods, about barns and houses. It usually builds its web, which is coarse and irregular, in very poorly lighted places.

Case No. 1. Mr. G., an employe of the L. & N. Railroad, was brought to me in June, 1921. The history was as follows: He was working with a fencing gang. When carrying a fence post on the shoulder he felt a sudden bite or sting. It felt very much like a bee sting. In about fifteen minutes thereafter he began to feel dizzy which was accompanied by nausea and a few minutes later by vomiting. The pain in the shoulder began to extend to the chest and back with increasing intensity. He was placed on a hand car and brought to Lynnville. The time that had elapsed between the time of the bite and the time I saw him was about one and one-half hours. When I first saw him he was in a state of collapse. His clothing was wet with perspiration. The abdominal muscles were rigid. The pulse was slow and regular. His chief complaint was pain in the lumbar region and abdomen. The pain was agonizing, paroxysmal in character. He was twisting and groaning. There was some shortness of breath, nausea, dizziness and thirst.

An examination of the shoulder showed two red spots, pin head in size, about one-

eighth of an inch apart. There was no swelling.

He was given one-fourth grain of morphine. In thirty minutes he was given four ounces of whisky. These gave little relief. In a short while a second dose of one-fourth grain of morphine was administered by hypodermic. In about one hour he began to get some relief and went to sleep, but in his sleep he was restless, rolling and tossing from side to side. Several hours later he awoke very much improved. There was no nausea, or dizziness, but he was still complaining of pain in the back. One-eighth grain of morphine was administered. He was then removed to his home in a neighboring town and was attended by Dr. L. L. Gilbert, of Prospect, Tenn., who gave me the following history of the case:

When Dr. Gilbert saw him at his home he was delirious, but this cleared by the next morning. On the second day the patient complained of aching all over with the pain worse in the back. This lasted for three days and required opiates for relief. He had loss of appetite and general malaise. He had marked loss of weight and strength. He remained in bed for two weeks and did not go back to work for four weeks.

I did not diagnose this case until the second case came to my attention, in which I could obtain a definite history of a spider bite.

Case No. 2. Mr. B., aged 45, manager of a sawmill, was seen on September 5, 1921, with the following history: About 3 o'clock in the afternoon he felt a sharp pain in the right ankle and thought he had been pricked by a splinter. His shoe was unlaced and he found a black widow spider which he killed and brought with him to the office about two hours later. His chief complaint at that time was shortness of breath, pain in the back, chest and abdomen and leg muscles, and nausea. His pulse was accelerated. The abdominal muscles rigid. He was given morphine, one-fourth grain, and one teaspoonful of aromatic spirits of am-

\*Read before the Giles County Medical Society, October, 1934.

monia. The ammonia was repeated each thirty minutes until he left the office two hours later.

An examination of the site of the bite showed a small red spot—no swelling. A little later there was a sloughing of the area the size of a quarter, which was very slow in healing.

The patient complained of aching all over for two or three days. He had loss of appetite and a tired-out feeling for a period of two weeks; he also had loss of weight, but went back to work on the fourth day against my advice.

This case (No. 2) resembled so closely case No. 1 that a late diagnosis of Black Widow spider bite was made.

Case No. 3. Mr. L., aged 24, laborer. History: On July 20, 1933, while cutting briars he felt a short sharp sting on the outer surface of the thigh and thought a thorn had stuck in his leg. In a short while he had pain in both thighs. The pain extended up over the abdomen and the lower part of the back; he also had a sense of weakness and soon became dizzy and staggered when he walked. These symptoms came on in about one hour after the bite.

When I saw him about two hours later he was completely prostrated. His skin was pale and moist; pulse regular and above normal. He was groaning with pain in lower abdomen, back, legs and arms. The abdomen was very rigid and extremely tender to touch, especially in the lower half. There was no nausea or vomiting. He was given morphine which was repeated.

The tenderness in the lower abdomen persisted for two days. The illness lasted for three weeks, during which time he lost twenty pounds in weight.

Case No. 4. Mr. Mc., about 38, a farmer, was hauling hay and was bitten on the top of the left foot about 5 P.M. on September 8, 1934. The pain was described by the patient as being like a wasp sting. In about twenty minutes the pain started moving up his leg. The pain was burning and stabbing in character. It rapidly extended to the hip, back, abdomen, and chest. He soon became short of breath and experi-

enced a sense of nausea. He was brought to my office two hours later complaining of nausea and dizziness; also pain in left hip, abdomen and back. The pain was paroxysmal and very severe. The abdomen was rigid. He was perspiring profusely. He was somewhat delirious and complained of thirst and violent pain. Blood pressure was 156/78; leucocyte count was 10,000. He was given one-fourth grain of morphine and a teaspoonful of aromatic spirits of ammonia. The morphine was repeated in an hour. The pain in the back and extremities lasted for three days with headache lasting for six days. His convalescence lasted about four weeks, during which time he experienced lack of appetite and loss of weight.

Summary: The symptoms common to all four of the cases are severe pain in the back—especially in the lumbar region; pronounced weakness, which may be designated shock, and rigidity of abdominal muscles.

Nausea was present in three of the cases. Dizziness was present in three cases. Extreme thirst in two cases and marked abdominal tenderness in one case.

After the acute symptoms subside there follow general weakness and loss of weight.

There was sloughing of an area around the bite in one case.

Blood pressure was taken in only one case which apparently was normal.

Leucocyte count was made in one case which was normal.

The observations of these cases suggest and emphasize the importance of care in taking histories and making a physical examination of the entire body.

The severe muscular pain, the difficult breathing, profuse sweating, which come on soon after a bite or a sting, should lead one to suspect a black widow spider bite. These cases resemble to some degree a case of ruptured peptic ulcer, that is, in regard to the violence of the pain, the shock, nausea, thirst, etc. The rigidity that is present is quite suggestive of a ruptured viscus. Such an error in diagnosis is reported in the literature. A diagnosis is based on the history of a bite or sting, soon to be followed by the symptoms mentioned.



## A PATHOLOGIC BASIS FOR THE DISABLED BACK\*

GEORGE K. CARPENTER, M.D., F.A.C.S., Nashville

**D**ISABILITY resulting from backache is indeed a major problem which confronts the industrial and orthopedic surgeon, as well as the physician in general practice. Every patient presenting himself or herself because of a disabling back demands a careful history, and a thorough physical and X-ray examination. As a result of such a history and examination, a pathologic basis for the back disability may be discovered in most instances. An understanding of the causative pathology insures rational therapy, and consequently the result of treatment will be more satisfactory. The causes of backache, as noted in the literature, are listed as follows:

1. General debility.
2. Gynecological and genitourinary lesions.
3. Neurological lesions, organic or functional.
4. Neoplasms.
5. Infectious lesions.
6. Metabolic or toxic affections of the muscles.
7. Arthritis.
8. Static or postural causes.
9. Trauma, acute or chronic.
10. Congenital variations.
11. Affections of the intervertebral disc.
12. Combinations of any of the above.

The discussion in this short paper will be confined to a consideration of the intervertebral disc. One needs only to refer to the recent publications of Schmorl, Keyes and Compere, Snoke, Geist, Calve and Galland, Moffat, and Mercer to realize the importance of this, until recently, little regarded and understood structure. (See Fig. I.)

Professor Schmorl, of Dresden, Germany, has very beautifully described the embryology, anatomy, physiology, and pathology of the intervertebral disc. It originates from the fetal notochord, not as a remnant,

but as a highly specialized structure. The adult disc is a fibrocartilaginous plate or pad between the bodies of adjacent vertebrae. The center of each disc is semigelatinous and is known as the nucleus pulposus. This is confined by strong fibrous and fibrocartilaginous tissue known as the annulus fibrosus which is complexly attached to the vertebral bodies and the longitudinal ligaments. The superior and inferior cartilaginous plates overlies cortical bone. The outer border is a bony rim, the epiphyseal ring, which blends with either cartilaginous plate. The adult disc contains neither nerves nor blood vessels and must receive its nutrition through the lymph stream. The discs are involved in every movement of the spine. The nucleus pulposus is the medium through which pressure and shock are transmitted from one vertebra to the next. Its function depends upon the integrity of its limiting structures, and any process weakening these structures will interfere with the normal function of the spine.

The intervertebral disc is subject to the following lesions:

1. Developmental changes.
2. Pathological conditions of the nucleus pulposus.
3. Pathological conditions of the cartilage plate.
4. Pathological conditions in the vertebral body.

*Developmental Changes in the Disc* of congenital origin or occurring in childhood are most often present in the form of nuclear expansions into the body of the adjacent vertebrae. Vertebral osteochondritis and structural spinal deformity may in certain cases be predisposed by developmental changes in the intervertebral discs.

*Pathological Conditions in the Nucleus Pulposus* may be encountered as follows, according to Keyes and Compere:

\*Read before the Tennessee State Medical Association, Chattanooga, April 10, 11, 12, 1934.



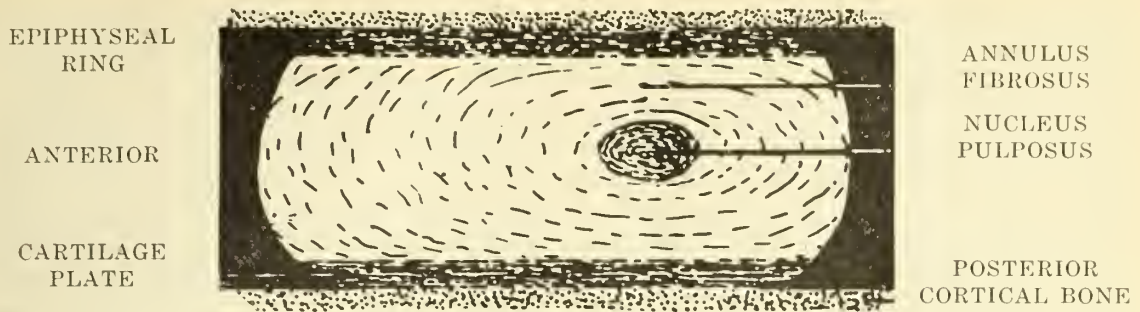


Fig. I—A Diagram of Intervertebral Disc.

1. Retropulsion or antepulsion.
2. Lateral shift.
3. Calcification.
4. Dehydration.

(1) Calve and Galland report cases of nuclear retropulsion with the formation of kyphosis and in some instances sufficient posterior displacement of the disc to result in paraplegia. Dandy has reported a case of loose cartilage from the intervertebral disc simulating tumor of the spinal cord.

(2) Lateral shift of the nucleus pulposus has been observed by Schmorl upon post-mortem examination of the scoliotic spine. If not an etiological factor, such a condition may in part explain the difficulty encountered in attempting to correct a lateral curvature of the spine. It is significant to note that Kleinberg believes 80 to 85 per cent of cases of structural scoliosis are incapable of explanation.

(3) Calcification of the nucleus pulposus has been reported by numerous writers. When present, the symptoms are likely to simulate tuberculosis, but the X-ray examination reveals the true pathology.

(4) Dehydration of the nucleus pulposus occurs with advancing age. Stress and strain may well hasten its development, and because of the resulting loss of function, an osteo-arthritis develops.

*Pathological Conditions of the Cartilage Plate* are reported as follows, according to Keyes and Compere:

1. Prolapse of the nucleus pulposus as a result of a congenital defect in the cartilage plate.
2. Injury of the cartilage plate as a result of chronic trauma.
3. Injury of the cartilage plate as a result of acute trauma.

4. The fibrillation of the cartilage plate.
5. Disease process affecting the cartilage plate.

(1) Prolapse of the nucleus pulposus as a result of a congenital defect in the cartilage plate has been suggested by Schmorl. Many of the injuries of childhood may be capable of doing damage to the cartilage plate, with the development of later changes identical to those resulting from congenital defects in the cartilage plate. Normal spinal function depends very largely upon the integrity of the intervertebral disc. The disc consists essentially of three parts: the nucleus pulposus and its necessary confining structures, the annulus fibrosus, and the cartilage plates. The nucleus pulposus is the medium of transmission of vertebral pressure and shock, and since its normal function depends upon the integrity of its confining structures, pathology is inevitable following a defect in either cartilage plate. There results a gradual leakage of the nuclear fluid with gradual thinning of the intervertebral disc. The round shoulders of adolescence may well be the end result of such a phenomenon. The cartilage plates are closely adhered to the adjacent surfaces of the overlying and underlying vertebrae, thereby permitting the nucleus pulposus material in some instances to prolapse into the substance of the vertebral spongy bone. A disturbance such as this may well be an etiological factor in vertebral epiphysitis as a result of irritation and disturbed function. It may manifest itself merely as a nuclear prolapse into the vertebral spongiosa, to be later revealed as a calcified nodule or a small punched out area in the body of the vertebra.

- (2) Injury to the cartilage plate as a

result of chronic trauma may be anticipated more frequently in the third and fourth decades. Williams lays much emphasis upon the thinning out of the intervertebral disc between the fifth lumbar vertebra and sacrum in cases of low back pain with sciatic irritation. (See Fig. II.) Perhaps it may be logical to presume that the chronic lumbosacral strain was symptomless or only slightly painful until the cartilage plate finally presented a small tear and loss of nuclear fluid with subsequent impairment of vertebral function. The disc itself is without nerve supply, and consequently its involvement is not painful until the development of vertebral or arthritic changes. Keyes and Compere in their most excellent and instructive monograph upon the subject make the following statement: "In every instance where nucleus pulposus material had been permitted to escape, there was definite narrowing of the intervertebral disc and, when most of the nucleus was curetted out, the adjacent vertebrae showed early changes of typical hypertrophic or osteo-arthritis of the spine and fibrosis of the material remaining in the space previously occupied by the nucleus pulposus." This remarkable deduction was made as a result of their experimental work carried out on dogs at the University of Chicago Medical School. The existence of an actual traumatic arthritis of the spine



Fig. II.

has long been recognized clinically. The pathologic basis for such an assumption would appear unassailable in the light of our present knowledge.

(3) Injury of the cartilage plate as a result of acute trauma may well be the etiological factor producing a late osteo-arthritis. A white male, age 52, weight 220 pounds, sustained a compression fracture of the third lumbar vertebra on April 6, 1931. The fracture was unrecognized until two weeks later, when he was placed on a hyperextension frame and fair correction obtained before a jacket was applied with the patient prone and in hyperextension. The original X-ray examination showed the intervertebral disc between the second and third lumbar vertebrae was damaged to the extent that the nucleus pulposus must have escaped from the confining annulus fibrosus and cartilage plates. An X-ray examination sixteen months later revealed a typical picture of localized osteo-arthritis. The history and physical findings in this case showed no causative factors other than trauma. Kümmel's disease, which is described as a crumbling collapse or a rarefying osteitis of a vertebral body appearing several months after a severe back injury, may find its origin in injury to the cartilage plate upon either side of the vertebral body with subsequent vertebral protrusions of the nucleus pulposus. Keyes and Compere report a case similar to one as reported by Schmorl which suggests such an etiology in Kümmel's disease.

(4) The fibrillation of the cartilage plate as a result of wear and tear, appearing in the hard worker or the aged, causes dehydration and lessened resiliency of the disc. The end result is thinning of the discs and vertebral bodies with eventual osteo-arthritis. Removal of suspicious teeth and other efforts at the eradication of foci of infection or toxemia will not benefit this type of arthritic spine. This is the type of lame back that responds to rest, heat, massage, and support.

(5) The cartilage plate may rarely be the seat of a diseased process with subsequent disc and vertebral pathology.

*Pathological Conditions of the Vertebral*



*Body*, as a rule, present a picture of osteoporosis, biconcave vertebral bodies, and spherical discs. Often the picture is one of osteoporosis and wedge-shaped vertebrae with thinning of the discs. Occasionally the picture is seen as one of osteoporosis and oval-shaped vertebral bodies as reported in osteomalacia. A white male, age 65, presented himself because of low back pain with resulting disability. An X-ray examination of his spine revealed a generalized vertebral osteoporosis, biconcave vertebral bodies, and spherical discs. (See Fig. III.) Schmorl believes this unusual and striking condition to be caused by expansion of the nucleus pulposus, due to release of pressure, the result of softening of adjacent vertebral bodies. This softening of the vertebral bodies may be the result of a chronic systemic disease such as osteomalacia, generalized osteitis fibrosa, and senile osteoporosis, or neoplastic invasion of the body of the vertebra as seen in endothelioma, multiple myeloma, sarcoma, and carcinoma. An X-ray examination of this man's skull proved his condition to be the result of multiple myeloma. Moffat has advanced the theory, as a result of micro-

scopic examination at autopsy, that the spherical disc is a result of compensatory hypertrophy rather than expansion of the nucleus pulposus.

Case Report: A white male, age 55, was active and well until July 5, 1931, when he injured his back as a result of a fire truck accident. Pain and disability were immediate and he was hospitalized, where he remained for about two weeks. An X-ray examination at that time was reported negative. He was much improved when he left the hospital, but he continued to have low back pain which was referred down both legs. He was referred to me on October 13, 1931, and presented a negative history and physical examination except for the commonly seen lame back with referred leg pain. The X-ray examination was repeated and revealed slight generalized vertebral osteoporosis, biconcave second and fourth lumbar vertebrae, and a spherical enlargement of the adjacent intervertebral discs. A diagnosis at that time could not be established. Recumbency on a Bradford frame followed by the application of a plaster jacket resulted in symptomatic relief. Repeated X-ray (see Fig. IV) examinations at frequent intervals revealed an extension of his vertebral pathology. After nearly three years this man is symptomless while wearing a removable celluloid jacket. There is no evidence to convince one that he has a vertebral malignancy or systemic disease capable of producing generalized vertebral osteoporosis. If his pathology is the result of his injury occurring on the fire truck, there must have been produced a trauma capable of causing damage to the intervertebral discs and weakening of the lumbar vertebral bodies. Instead of an injury of the lumbar vertebral bodies capable of producing sufficient weakening and subsequent softening to permit expansion of the nucleus pulposus, Moffat's theory of compensatory hypertrophy of the intervertebral disc may in this particular case better explain the biconcave vertebral bodies and the spherical discs. Such an explanation is further strengthened by the fact that the vertebral bodies of the second and fourth lumbar vertebrae do not present



Fig. III.



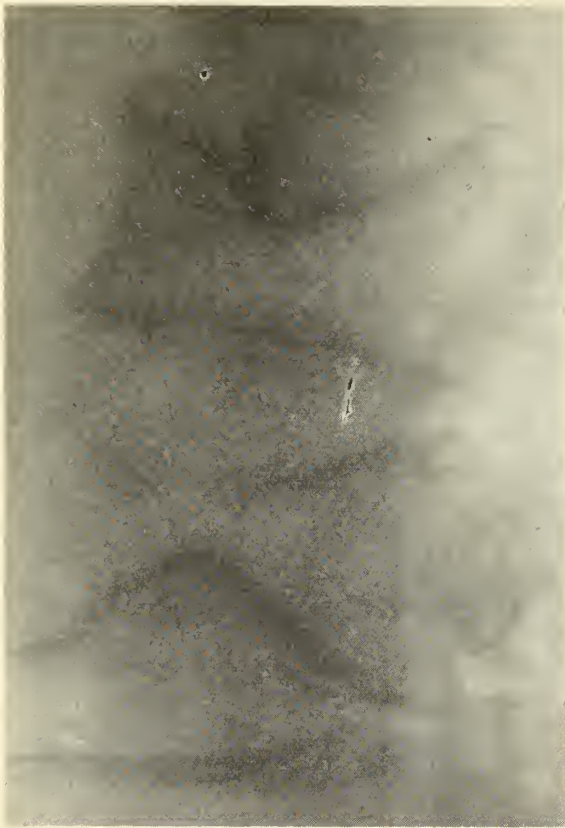


Fig. IV.

the osteoporosis as noted in the case reported, due to multiple myeloma.

**Case Report:** A white unmarried female, age 65, with diabetes and arteriosclerosis, presented herself because of a disabling back of three months' duration following moderate trauma. An examination of her spine revealed thinning of the intervertebral discs with definite wedging of the vertebral bodies accompanied by hypertrophic arthritic changes in the dorsal spine as well as biconcave bodies and spherical discs in the lumbar spine. Osteoporosis was marked. A short while previously she had been examined and X-rayed in another city and told that she had sustained compression fractures of the spine. In this case, the trauma was hardly sufficient to have been more than a contributory factor in a spine already presenting evidence of senile osteoporosis and prolonged wear and tear upon the intervertebral discs.

#### SUMMARY

1. Injury to the intervertebral disc, whether the result of disease or trauma,

either acute or chronic, must be given consideration as the pathologic process responsible for any back disability.

2. The intervertebral disc injury is not revealed by X-ray examination, but the resulting vertebral changes produce characteristic X-ray findings.

3. Intervertebral disc injury manifests itself most frequently as follows:

- a. Retropulsion of the nucleus pulposus into the spinal canal.
- b. Prolapse of the nucleus pulposus into the adjacent vertebral body.
- c. Localized vertebral osteo-arthritis.
- d. Generalized vertebral osteo-arthritis.
- e. Thinning of the intervertebral discs, with or without wedging of the vertebral bodies.
- f. Biconcave vertebral bodies and spherical discs.

4. Since our knowledge of the intervertebral disc has recently been greatly advanced, we are often able to find an affection of the intervertebral disc as the pathologic basis for the disabled back.

#### BIBLIOGRAPHY

1. Calve, J., and Galland, M.: "The Intervertebral Nucleus Pulposus. Its Anatomy, Its Physiology, Its Pathology." *J. Bone and Joint Surg.*, XII, 555, July, 1930.
2. Dandy, W. E.: "Loose Cartilage from the Intervertebral Disk Simulating Tumor of the Spinal Cord." *Arch. Surg.*, XIX, 660, 1929.
3. Geist, E. S.: "The Intervertebral Disk." *J. Am. Med. Assn.*, XCVI, 1676, 1931.
4. Keyes, D. C., and Compere, E. L.: "The Normal and Pathological Physiology of the Nucleus Pulposus of the Intervertebral Disc." *J. Bone and Joint Surg.*, XIV, 897, October, 1932.
5. Mercer, W.: "Orthopedic Surgery." William Wood and Company, 1933.
6. Moffat, B. W.: "Enlargement of the Intervertebral Disc Associated with Decalcification of the Vertebral Body: A Compensatory Hypertrophy." *J. Bone and Joint Surg.*, XV, 679, July, 1933.
7. Schmorl, G.: "Über die an den Wirbelbandscheiben Vorkommenden Ausdehnungs- und Zerlegungsvorgänge und die Dadurch an ihnen und der Wirbelspongiosa Hervorgerufenen Veränderungen." *Verhandl. d. Deutsch. Path. Gesellschaft.*, XXII, 250, 1927.  
"Ueber Knorpelknoten an den Wirbelbandscheiben." *Fortschr. a. d. Geb. d. Röntgenstrahlen*, XXXVIII, 265, 1928.
8. Snoke, P. O.: "Vertebral Epiphysitis and Os-

teochondritis." J. Bone and Joint Surg., XV, 963, October, 1933.

9. Williams, P. C.: "Reduced Lumbosacral Joint Space." J. Am. Med. Assn., XCIX, 1677, 1932.

### DISCUSSION

DR. J. J. ASHBY (Nashville): Mr. Chairman and gentlemen: Dr. Carpenter has brought us a very interesting paper and a good resumé of the work that has been done recently on the intervertebral disc pathology. Peculiarly enough, until recently no one has laid much stress on the fact that the intervertebral disc could be pathological. Although it takes part in every motion of the body, it supports the body weight just as truly as does the vertebral body itself, but usually the pathology has been either overlooked or has been laid at the door of the vertebral bodies.

Schmorl has shown that there are injuries to the intervertebral disc which allow a herniation of the semifluid or gelatinous nucleus pulposus outward through the surrounding fibrous tissue into the vertebral canal. This sometimes produces symptoms that might be attributed to a cord tumor.

He also brings out that there are no nerve filaments in the intervertebral disc, that they may be injured without the patient knowing at the time and without very much discomfort, and then after a few months X-rays may show that there has been injury to the disc and will show deformities.

He also brought out another interesting thing, that as people get older the intervertebral disc contains less water, becomes more or less dehydrated, and loses some of its elasticity. This seems to explain why people get spur formation on vertebral bodies, deformities, and narrowing of the intervertebral disc as they go along.

It has been brought out also that there may be a lateral shift of the nucleus pulposus. We know that there is a lateral thinning of the intervertebral disc in scoliosis cases, and it seems that that might account for the condition, or it may be just a condition due to pressure alone.

As to these biconcave vertebral bodies, apparently the pathology in those cases is in the vertebral body itself. There may be an osteoporosis; carcinomatous metastasis in the vertebra, myelomata. Any condition that softens the vertebral body and allows an expansion of the nucleus, producing that condition.

I certainly enjoyed Dr. Carpenter's paper, and I think he is to be congratulated for bringing us something that is new, something that has been overlooked, and which may explain a good many pathological conditions of the spine after more work has been done on it.

DR. R. C. ROBERTSON (Chattanooga): Dr. Carpenter has presented a paper on a new and

vital subject. Keyes and Compere have repeated much of the work of Schmorl, who first called attention to what has heretofore been considered rather an inert pad lying between the vertebrae.

It is interesting to see that Keyes and Compere, after puncturing the nucleus pulposus in experimental animals, were able to produce conditions, which radiographically are very similar to hypertrophic arthritis.

At the last meeting of the American Academy of Orthopedic Surgeons, Pease demonstrated specimens removed at autopsy from patients in whom spinal puncture had injured the nucleus pulposus and had resulted in gross and radiographic manifestations of hyperarthritis.

At present it is unknown just what part may be played by pathology within the intervertebral disc, and what part is played by pathology in the adjacent vertebrae in producing various clinical entities which involve the disc. It is probable that it will yet be some time before these questions can be settled. It is probable that both play their part. It is accepted that in pathological processes causing a softening of the vertebral body, the pressure within the nucleus pulposus itself does produce biconcave vertebral bodies. It is also established that rupture of the nucleus pulposus with escape of its fluid content will in turn produce pathology of the vertebral bodies.

We are able to demonstrate, by semilateral X-ray plates of the spine, pathology in the articular processes in an appreciable percentage of the "low back" cases. Possibly this may be a reaction produced through injury or pathology in the nucleus pulposus, just as there is an increased muscle and ligamentous strain produced by unreduced fractures of the vertebral body. It is certain that the intervertebral disk must be considered in many cases presenting spine pathology.

DR. R. R. BROWN (Nashville): I wish to take this opportunity of complimenting Dr. Carpenter on his presentation of this subject, that of possible injury to and pathology in the intervertebral disc. I think until we have found the exact working of the process it certainly has this practical warning or point to be considered in X-rays of recent traumatic cases.

I am sure all of us have had cases in which the X-ray of the spine following a severe trauma was negative for fractures, at the same time one or another of the intervertebral discs was narrower than it should be, or the relation of the bodies to one another was altered.

I think that we will find that those cases should be watched and given a rather guarded prognosis in the possibility that it is a rupture of the intervertebral body or the possible expulsion of the fluid substance.



## A DAY IN COURT\*

J. K. HALL, M.D., Richmond, Virginia

THE sharp crack of a rifle ran across and up and down the busy street of the busy town at the busiest hour of the day. Instantly there were uneasiness and apprehension, for no other phenomenon is so perturbing as a sound out of place and out of time. And the report of a rifle at midforenoon in the heart of any town is an unusual occurrence. All the upgazing eyes were turned toward the office of Dr. Fowle, above the drug store. From the muzzle of the rifle being slowly withdrawn from one of his windows a wraith of smoke floated lazily across the street. A groan came from Chief of Police Shearer, who had been leaning comfortably against a telephone pole just across the street from the drug store. He grasped at his abdomen, stumbled into a grocery store, and gasped out that he had been shot. Two clerks came to his support, but his agony was so great that he could neither lie nor sit. As he paced 'round and 'round, supported on either side by a clerk, Dr. Fowle entered the store, placed a revolver against the body of the chief, and fired into him again and again. The officer fell to the floor. With one foot Dr. Fowle steadied the head of the writhing man, and despatched him with a bullet sent carefully through his head. One of the clerks, in a state of collapse on the floor, had unwittingly placed his body in the way of one of the bullets that had channeled a pathway through the trunk of Chief Shearer. Dr. Fowle, pistol in hand, retraced his steps across the street, and from the drug store telephoned his wife that he had just killed Chief Shearer and that the officer would trouble them no more. Then the doctor went upstairs to his office, replaced the Leuger revolver in the safe, came downstairs, met the officers, and calmly surrendered.

Simmons ville, the town in which Dr. Fowle had practiced medicine for a quar-

ter of a century, became greatly excited, and it felt that in doing to death the chief guardian of the law, that through him Dr. Fowle had assaulted the citizenship and the character and the very soul of the community. The doctor was hurried away to jail in the county's capital, and the people wondered what demon could have transformed the quiet physician into a murderer so reckless. Simmons ville had long been slowly emerging from a quiet village into a busy, prosperous, industrial town. In it were many factories in which the growth of the forest was fabricated into furniture that had carried the name of the town throughout the country. Industrialization had changed the activity of the town, but not the character and the personality of its citizenship. They were intelligent, honest, industrious, frugal, home-loving, church-going—proud of the name and the reputation and the honor of the civilization which they had developed by their own efforts.

In terms of their customary thinking they rationalized the doctor's bloody deed. Chief Shearer had only lately been engaged by the town, and he had been ordered to enforce the law and to drive out the bootleggers. The good citizens of the town neither bought nor sold nor drank whisky, and they were unwilling for others to indulge in such sinfulness and such violation of the law. But Dr. Fowle was not a teetotaler. Indeed, he had been known to indulge in a highball, and there were rumors that he had experienced intoxication. The good people of the town felt that he was unwilling to understand that sin and pleasure are synonymous terms.

Soon after the commission of the crime I was asked by a medical friend of the prisoner if I would go to the jail and examine him, and, if requested, offer my opinion of his condition in court. And when the doctor asked what fee I should charge for the service I replied that I should rather he would withdraw the question, so that when asked by the prosecution on cross-

\*Read by invitation before the Richmond Academy of Medicine, September 25, 1934.



examination what my remuneration would be I could truthfully answer that I did not know.

Upon reaching the town I felt immediately that the atmosphere was charged with hostility to the prisoner and that judgment had already been pronounced against him. Even amongst the best people, there was no desire to attempt to understand the meaning of the crime. The doctor had boldly and defiantly under the eyes of many men and many women nullified one of the great pronouncements from Sinai. The moral and the religious thought of the town was unaffected by interlinear and marginal readings. They took their Scripture straight. Theirs was not to reason why, if at all, but to apprehend, condemn, and punish the violator of the law—God's and man's. If the individual should wantonly pluck out an oculus of his neighbor, let him submit himself to the extraction of one of his own eyes; and if a person should suffer the loss through another of even one of his many teeth, even in these days of frequent extractions, let that person give up one of his own teeth. So reasoned, or, at least, so felt, Simmonsville. Nor are the good people of that good town different from good people here or elsewhere. The good citizen is always the conforming citizen; if he thinks and feels and acts with those in good repute he also is good; if he does otherwise, he is looked upon with dubious, if not disapproving, eyes. So it has been right along—with Moses, Socrates, Jesus, Voltaire, Paine, Patrick Henry, Eugene Debs, Bertrand Russell—and many an agitator who walks today the streets in sowing his seeds of discord. The scientist, pioneering in any domain of thought, encounters always disapproval from those within the hallowed circle. To be not understood is to be disapproved, if not condemned. To condemn is easy; to understand difficult. I felt the impingement of the hostile attitude of the town. Now I must see the doctor. Inability to walk the straight crack in the floor may be due to cerebellar pathology, or to one of numerous other somatic dysfunctions. The problem was to discover why the doctor in mid-life had deviated so suddenly and so vio-

lently from his own and the community's social, legal, moral, and medical pathways of conduct standardization.

I was cordially welcomed to the jail by the doctor. We had been college mates and there was instant and mutual recognition. We talked briefly of the old days. And then the doctor remarked that he was anxious for the trial to be gone through with promptly in order that he might return to his family and resume his practice. He apparently entertained no doubt that he would be discharged. He knew, he said, that he had rendered a service to the community in removing the officer, for he was not only unfit to be an officer, but he was even more unfit to continue to live. Ever since Chief Shearer had come to town he had been hounding the doctor; frequently messages came to Doctor Fowle that Chief Shearer was going to send him west; various people told the doctor that the chief had malignant eyes upon his young daughter; a short time before the shooting the doctor lost his garage by fire. He reached the building just before the roof fell, and while removing his cars he was almost caught by the collapse. Just as he reached the burning garage he was almost certain he saw Chief Shearer running away from it. Doctor Fowle had no doubt that the chief of police had burned the garage. He had no doubt that the chief had hoped also that the doctor would lose his life in the fire.

It was a long, long story, of two or three days' length. The officer was against him. His hostility was manifested insidiously. In meeting the officer upon the street he could not help feeling the knowing and superior way in which the chief would glance at him. Occasionally he would see Chief Shearer wink an eye when others were present. He knew the officer had turned against him the town council, of which Doctor Fowle had been a member. Chief Shearer's innuendos had injured the doctor's practice and damaged his character. Doctor Fowle had often told his wife that the officer was planning harm to their daughter. The chief had burned their garage; soon he would burn their home, and in it cremate them all. Doctor Fowle was

surprised at his own incarceration. He should have been voted the thanks of the community.

The paranoid trend in the doctor had been long known to those who knew him well. In college he was studious in a narrow domain, possessor of certain gifts, but socially aloof. He was artistic, and he drew so well that his anatomical representations could have been used as illustrations. He had been interested in metallurgy, later in certain mechanisms, and only want of funds had prevented his perfecting a perpetual motion apparatus. He had attempted to make a fortune by squandering a good deal of his substance in trying to make possible various impossibilities. Gradually, but progressively, his failures, one after another, had caused him to give thought to his continuing misfortune. Finally he did what most of us do. 'He blamed his failures on others. He looked outside of himself for the reasons for his own inadequacy. Eventually, his grandiose ideas, failing of materialization, were succeeded by feelings of suspicion, doubt, and eventually by persecutory notions that offered to him satisfying reasons for the disasters which lived upon his heels. He protected his own conception of his own intelligently by a process of projection. Upon others he placed the causes of his steady retrogression. But he was unaware of what was taking place within his mind and his emotions. He had no insight. His whole attitude toward life had become delusional. Now delusions, we know, are much more dominating than rational ideas. The normal individual may entertain the suggestion that his notion is unsound; the irrational person knows beyond a peradventure that his ideas are all valid. The delusion offers to the irrational individual an explanation of himself to himself without understanding of himself. The delusion carries self-satisfaction, but not self-enlightenment. The word delusion has been left out of the paranoiac's lexicon. He is right; the rest of the world, unfortunately for themselves, are wrong. The paranoiac's mental abnormality exiles him from his normal self and from society.

I tried to understand the doctor, but I did not engage in the futile effort of attempting to change his attitude. The north

star is fixed; the paranoiac's ideas become more and more fixed.

Later, I returned to court. Never before nor since had I seen so many lawyers in one bar. Because of hostile local feeling a jury had been brought from a near-by county. The people were all there. I was not receptive to the legal suggestion of a violent but temporary brain storm. Most things that are now here have been long on the way—whether heart disease, apoplexy, kidney stone, or courthouse insanity.

Rather to my surprise, the jury held Doctor Fowle not guilty of murder, because they believed the killing was the act of an irrational man. I had expressed the opinion that he should not be discharged. I have long looked with wonder upon the ability of the lawyer instantly to change his opinion and his attitude. And I admire the boldness and the lack of apology with which it is done. The lawyers that had been prosecuting the doctor—there were many of them—and those that had been defending him—there were many more of them—promptly changed sides. The prosecutors who had derided the statements that Doctor Fowle was insane, immediately and raucously declared that it would be a crime to liberate an insane man; counsel for defense, who had welcomed the diagnosis of paranoia, hooted out through the open windows the idea that Doctor Fowle would be a menace to any community, and they clamored for his release. The doctor was properly transferred to the Department for the Criminal Insane. Later, I saw him there, both harassed and comforted by his unhappy delusions. On the morning succeeding the night before, a series of articulated sheets were found suspended to the ground from a window of Doctor Fowle's bedroom. He had volatilized. Later, he was heard of in a distant southern state. Probably his own state did not hunger and thirst for him again. Still later, the newspapers reported his death from an accident in a far-away state.

It is written: "For all they that take the sword shall perish with the sword." I suppose the saying to be equally true, whether the weapon be brandished by the hand or wielded by the psyche.



## URINARY UROBILINOGEN: VALUE OF ROUTINE ESTIMATION\*

P. H. LEVINSON, M.D., Chattanooga

THE usefulness of a laboratory measure suggested as a routine procedure must be based on at least four factors. First, and most important, it must reveal disorders that are not readily discernible on physical examination. Second, it must clarify signs obviously present. Third, it may be of value as an activity index lending aid in prognosis. And, fourthly, performance must be easy, results not too delicate, and cost moderate. Ehrlich's test for urinary urobilinogen satisfies these requirements. It is not a new procedure, but I believe has been scantily utilized. Further usage, in my opinion, would bring out many enlightening possibilities, as well as fixing again in our minds its manifold usefulness.

In order that we may clarify the bases for the test it is worth while to review summarily the physiology of urobilinogen production and assimilation, essentially pigment metabolism as involved in the liver.

We might conceive of the liver as being two structures in relation to pigment metabolism.

First in its relationship to the actual metabolism and formation of bilirubin, it is but a part of the reticuloendothelial system, of which it counts its Kupffer cells a part. These cells, together with others of the reticuloendothelial system elsewhere as in the bone marrow and spleen, apparently act phagocytically on weakened red blood cells releasing hemoglobin. Hemoglobin is then hemolysed to form hematin and ultimately bilirubin. The bilirubin so released is adsorbed by some constituent of the blood stream, probably serum globulin. This adsorptive process is most important, for it prevents bilirubin from being excreted in the urine, from being rapidly oxidized, and from reacting immediately with the diazo reagent of Van den Bergh as it would do if it were free.

The second structure of the liver then

comes into play. For it is generally held that the parenchymal or polygonal cells of the liver play no part in the formation of bilirubin. They merely act as avenues through which the bilirubin as formed above is taken up by the liver and transferred to the bile capillaries and out as the principal coloring matter of the bile. In other words, the main purpose of the polygonal cells is solely to extract from the blood the bilirubin formed by reticuloendothelial cells and excrete it in the bile.

The bile then flows into the intestines, and is here broken down (reduced) by the action of putrefactive organism to urobilinogen. The colorless substance, urobilinogen, is further transformed by oxidation to urobilin, a substance that is normally present in small amounts in the stool, but not in the urine. Some of the intestinal urobilin is absorbed by the intestinal capillaries, carried back to the liver, reconverted to bilirubin, and ultimately to hemoglobin. This recurring cycle involving the transfer of bilirubin from the liver to the intestine, reabsorption within the intestine as urobilin and excretion in the liver as bilirubin is termed the enterohepatic circulation of bile pigment.

Normally urobilinogen is present only in traces in the urine and stool. Any state, however, which leads to the increased formation of bilirubin in the blood will lead to an increased urobilinogen output as most easily noted in the urine, provided, however, that the bilirubin at some point comes into contact with organism capable of reducing it to urobilinogen. These putrefactive bacteria are normally present in the intestines. They may, however, occur in the bile passages in liver disease. Urobilinuria will be present also when the liver is temporarily or permanently incapacitated, for at this time the polygonal cells are unable to metabolize even normal amounts of urobilin absorbed from the intestines, and some is excreted in the urine.

\*Read before the Chattanooga and Hamilton County Medical Society on November 15, 1934.



These conclusions prove of definite value when we study the detection of urobilinuria clinically.

1. *In Hepatic Dysfunction, Temporary or Permanent.*

I believe increased urobilinuria is a more delicate sign of liver insufficiency and occurs earlier than any other sign of hepatic incapacity. To me, at least, it has proved more reliable than the Van den Bergh, icterus index and dye excretion tests. In this connection we follow it in:

a. The chronic passive hyperemia of heart disease. Here because of anoxemia the polygonal cells are unable to function properly. Frequent testing provides a fairly good guide to the progression of cardiac therapy.

b. In cirrhosis of the liver a portion of the portal blood, containing urobilin, is carried directly into circulation. At the same time functional incapacity of the liver is present. This explains why urobilinuria may be present in this condition with no hyperbilirubinemia or bilirubinuria.

c. In ptosis of the liver free outlet is not available for the hepatic venous flow. Congestion and probably anoxemia of polygonal cells occurs and urobilinuria is noted.

d. It is possible that marked drains on the glycogen stores of the liver temporarily incapacitate it. I have noted urobilinuria after strenuous exercise, or coitus. Diabetic coma frequently shows it.

e. Urobilinuria noted during the course of infectious diseases is of paramount importance, for it indicates either hemolysis or damage to the liver. Especially is this true of pneumonia, the streptococcal diseases and malaria. Increasing urobilinuria in pneumonia is a serious finding, and, in my opinion, is a more reliable sign as to prognosis than the leukocyte count.

f. Arsphenamine, phosphorus, chloroform, tetrachloride hepatitis uniformly show urobilinuria in relation to the toxicity of the process. Frequent testing during luetic therapy is valuable.

g. Excessive urobilinogen is excreted throughout the course of acute and subacute yellow atrophy of the liver, as well as the

toxemias of pregnancy. Signs of decline or restoration of liver function are readily noted.

h. Most important, in a variety of other conditions wherein liver derangement is not suspected, we may find ready evidence of it in the urine. I have found this true particularly in diseases of the skin, and one questions whether the cutaneous manifestations are not but symptoms of an underlying systemic disorder. For example, dermatitis herpetiformis practically invariably shows a fairly marked urobilinuria. Frequently, too, the liver is enlarged in this condition. Urticaria often shows excess urobilinogen in the urine, and this may aid in explaining the good results achieved in its treatment with digestive extracts.

2. *Biliary Obstruction.*

No single test is of greater value than the study of the urinary urobilinogen in biliary obstruction. It is important to recall that the action of putrefactive organism on the bilirubin in the bile is necessary for the production of urobilinogen. If this fails to occur as it would if no bilirubin reached the bowel as happens in complete biliary obstruction no urobilinogen is absorbed, and hence none excreted in the urine.

Hence, in catarrhal jaundice during the stage of incomplete obstruction (the early and late states), urobilinuria in obstructive jaundice indicates incomplete or intermittent duct obstruction with liver damage or infection. It is not present in complete obstruction.

The value of this fact is apparent. For example, a stone in the common duct causing obstruction practically always shows at some time urobilinogen due to the seepage of bile about the calculus and into the duodenum. After complete obstruction as in carcinoma of the head of the pancreas, the urine at no time shows any evidence of urobilinogen. If then we have a case of obstructive jaundice without urobilinuria that intermittently or at any time shows urobilinuria after complete obstruction has set in, we would, in my opinion, be justified in absolutely ruling out carcinoma of the head of the pancreas.

### 3. *Infections of the Biliary Tree.*

Cholangitis, pylephlebitis, liver abscess show varying degrees of urobilinuria.

### 4. *Excessive Hemolysis.*

When urobilinuria occurs here it results not from liver damage, but due to the inability of the normally functioning liver to deal with the excessive urobilin formed from the excessive amounts of bilirubin released in the intestines and elsewhere.

a. In pernicious anemia it is almost invariably present, and accepting it as a record of erythrocyte destruction, its analysis with frequent estimation of the reticulocyte count will give us an excellent picture of the course of the red blood cells in the disease.

b. The diagnosis of hemolytic jaundice (fragile red blood cells) is aided by the finding of marked urobilinuria without clay-col-

ored stools. Remissions in this disorder may be first noted in the urine.

c. Splenic and other hemolytic anemias exhibit a definite though less marked reaction.

d. Excessive hemorrhage as in ectopic pregnancy may lead to increased bilirubinemia and urobilinuria. This may be of some slight value in differentiating the condition from other pelvic disorders.

In summary, we find urobilinuria occurs in a great variety of conditions. Its lack of specificity, however, as with the leukocyte count or sedimentation rate, does not diminish its usefulness. It tends to bring to light disorders not manifest on physical examination, and aids in clarifying or differentiating observable pathology. Routinely used, the simple test would amply justify the time and expense involved in its application.



## OPTIC ATROPHY DUE TO CHIASMAL TUMOR\*

RALPH O. RYCHENER, A.B., M.D., Memphis

THE ophthalmologist is frequently called to consultation by the internist and neurologist on cases of brain tumor, in which, due to increased intracranial pressure, papilledema and headache are prominent signs and symptoms of the disease. He is more apt to be consulted directly by the patient in those cases where brain tumor by its relation to the optic nerves or chiasm has produced by direct pressure a failure of vision which may be the only symptom of intracranial pathology. When, in addition, a pallor of the optic nerves is present with bitemporal field defects or a tendency in that direction, evidence points strongly toward hypophyseal tumor. But if constitutional evidence of disordered pituitary function is lacking and the X-ray films of the skull show no abnormality of the sella turcica, then one must place the lesion in front of the hypophysis cerebri, and in a middle-aged person the diagnosis of suprasellar meningioma may be made with fair assurance of accuracy.

Such a case is illustrated by Mr. S. S. B., age 49, of West Point, Mississippi, seen June 11, 1934, because of failing vision in the right eye for the past year. Eight years previously vision of the left eye had failed entirely, but there was prompt recovery after the removal of two abscessed teeth. With the blurring of vision in the right eye, the teeth were again investigated, and no pathology found. Apparently nothing else in the way of medical investigation was done, although the patient was seen by his home physician and oculist during this time.

Ophthalmological examination disclosed a reduction in vision to 20/100 in the right eye, while the left eye was practically normal, 20/20 partly. Near vision was reduced to Jaeger, 18 and 2, respectively. The pupils reacted normally. The ocular media were clear. The right optic nerve was very pale; the left was of normal color. Arterio-

venous compression was present in the retinal vessels, but there was nothing in the fundi to explain the optic atrophy present in the right nerve. The visual fields showed a temporal defect in the right eye; there was an inferior sector notching for form with a hemianopsia for colors. The left eye seemed normal.

A complete physical examination by Dr. L. H. Motley showed no constitutional evidence of any disease and the X-ray films of the sella turcica showed some evidence of erosion of the posterior clinoid process.

A diagnosis of prechiasmal tumor was made and consultation arranged with Dr. R. E. Semmes, who advised operation. The patient actually seemed to rejoice in the knowledge that some logical explanation could be offered to explain this gradual visual loss, and wished immediate operation. However, his family and home physician persuaded him to go to Baltimore for examination where this diagnosis was confirmed.

On June 25, 1934, Dr. Walter E. Dandy, of Johns Hopkins Hospital, operated and removed a suprasellar dural endothelioma weighing 83.4 gms. His operative note which he was so kind as to send me follows:

"The usual hypophyseal reproach with concealed incision was made on the right side. It was easy to reach the region of the optic nerves. Everywhere in this region a reddish brown granular tumor was adherent to both the cells and the base of the brain. They had to be separated and the little bleeding points cauterized. The optic nerve could not be seen until many of these tumor adhesions were severed. It was then found that the right optic nerve was bulging markedly outwards. The left could not be seen because tumor filled the region. It was clearly a dural endothelioma. Every effort was made to get a cleavage line between the dura and tumor, but this could not be done, the adhesions were so tight. Efforts were made then to remove the tumor intercapsularly, but the tumor was so hard

\*Read before Memphis and Shelby County Medical Society, November 20, 1934.

that no impression could be made upon it with a large scalpel. The whole chiasm bulged upwards.

"It was clear that one could get nowhere with this large mass without dividing the optic nerve. This was done and portions of tumor were curetted away, though great strength was needed to get any portion of it with a curette. It was very fibrous and stringy. The undersurface of the right optic nerve had grown tightly into the tumor so that it had to be hewn out with knife, scissors, and scalpel. We were fully prepared to sacrifice the right optic nerve in order to save the left one because both would have been lost by progress of the tumor. It was now possible to get behind the tumor with a curette. An attempt was made to lift it forward, but it had such a broad base of the diaphragm of the cells that it could not be lifted.

"We then tried again to shell it away through the dural diaphragm and were making some progress when a large bleeder

developed on the right side. This was recognized at once as a tear in the carotid artery. The carotid was compressed at once with the finger, and with suction one could see the tear in the artery. With a portion of the suction tube in the tear and with the use of the cautery, it was not difficult to thrombose the artery and stop the bleeding. The patient could not tolerate this at his age because motor function of the right hemisphere would certainly be destroyed because of inadequate circulation through the circle of Willis.

"The remainder of the tumor was now removed. It was pushing the left optic nerve away and was not adherent to it. This nerve was then freed without apparent injury. The wound was dry and closure was made in the usual manner. The bone flap was replaced and wired. The galea and skin were closed with interrupted sutures of silk."

The patient failed to rally from the operation, and died the following day.

# MANAGEMENT OF PUERPERAL ECLAMPSIA IN THE HOME\*

K. S. HOWLETT, M.D., Franklin

"DON'T be in a hurry" is an admonition that should probably be inscribed in illuminated letters over every lying-in-room. An article by Dr. Joseph B. DeLee and Dr. Heinz Seidintorpf in the *A. M. A. Journal* of January 7, 1933, is enlightening and gives us much food for thought.

It states that the "profession of being a mother is the most hazardous of all professions, and the death rate among married women under 35 is greater than that of men or single women of the same age."

It seems to show quite clearly that childbirth is safer in the home than in the best-regulated hospitals, inasmuch as the puerperal death rate, as reported from various countries, is or has been uniformly higher in institutions than in the home, and even in private practice lower in the practice of midwives than in that of doctors. According to statistics compiled by the Scottish Board of Health, which corresponds to the average of all reports received, 2.8 per thousand die with midwives, 6.9 with doctors, and 14.9 in institutions. The midwives of England and the central European countries as well as those of cities of the United States are carefully trained, and should not be classed with the midwife as met in the rural sections of Tennessee, whose efficiency is poor, and whose record is certainly not up to the above. The summary of that article as given by Dr. DeLee follows:

(1) "This study in the incidence and causes of puerperal mortality was made by a competent and unprejudiced observer, Dr. Heinz Seidintorpf, of the University of Leipzig, who at the time was spending an exchange year at the University of Chicago."

(2) (Let's get this.) "While the hospitalization of maternity cases is increasing everywhere, puerperal mortality is not decreasing anywhere."

(3) "Meddlesome midwifery and puerperal infection seem to be the chief causes of this surprising and deplorable institutional mortality." His conclusion is that "meddlesome midwifery must be abated or made safer."

Let us who do practically all our obstetric work in the home not pause to point an accusing finger at the surgeons and obstetricians of the hospitals. Let us not forget that meddlesome midwifery is not confined to institutions.

The small town or country doctor, usually called hurriedly to see a woman in labor, compelled oftentimes to postpone other important calls and to leave work in his office unfinished, far from his office with no telephone available, is sorely tempted to use some method of hurrying up the labor solely to save his own time. Oftentimes, too, the patient herself, impatient of her suffering, begs for immediate relief, and offers to take all the responsibility on herself and to absolve the doctor from blame if only he will terminate her travail. The application of forceps is an easy and spectacular thing to do, and herein lies no easily resisted temptation. Pituitrin is a most powerful and valuable agent, which whips up lagging pains in a manner most gratifying to the doctor, impatient to get away. On the other hand, like any powerful drug, it should be used with caution always, and in my opinion it is still used too often and too boldly. We are learning how limited is its sphere in *prepartum obstetrics*.

The term, meddlesome midwifery, includes many measures besides Cæsarean section and other obstetrical surgery.

Perhaps the only exception to both these rules, viz: patiently letting nature take its course, and keeping the labor patient at home, is in puerperal eclampsia, and even in puerperal eclampsia the trend is decidedly towards conservative management as opposed to precipitate emptying of the uterus, Cæsarean section, and accouchement force.

As prevention occupies a more important

\*Read before the Rutherford County and Stones River Academy of Medicine, Murfreesboro, June 13, 1934.



part in the management of eclampsia than that of any other obstetric complication, it is well for every doctor, nurse, and public health agency to continue to stress the necessity for every pregnant woman to place herself under medical care immediately upon suspecting pregnancy. Indeed, it would be even better, if we could have the opportunity of testing out the kidney function before pregnancy, so that we might determine whether we have only the so-called "kidney of pregnancy"—or a true nephritis to deal with.

Nephritis in any form is a dangerous complication in any pregnancy, and we are amply justified in warning our female nephritics of the risk they assume in becoming pregnant. However, there seems to be little or no evidence that nephritis predisposes notably to eclampsia, though both do present practically the same clinical symptoms. The pathological findings in the kidney, however, are different. The majority of authorities claim that in the kidney of pregnancy the process is a degenerative one, while some contend that it is inflammatory. All seem to agree that there are minute hemorrhagic spots in the glomeruli followed by fatty infarcts, hyaline casts, etc. All further agree that in eclampsia the kidney shows a tendency to recover and function normally after the termination of pregnancy, in contrast to the kidney of glomerulic nephritis, which is practically always injured by pregnancy, and frequently grows progressively worse afterwards.

It has for a long time been my impression that the statement in all our textbooks that eclampsia is strictly confined to the last four months of pregnancy was just a little misleading. In my early practice, I saw two cases (one of whom died and the other aborted) with convulsions in the first half of pregnancy, in which I could account for the convulsions only on the theory of puerperal eclampsia. Some of you may recall the case I reported first to our local society and then to the Middle Tennessee Medical Association last fall. In all the discussion of that report, no theory was advanced that gave a more plausible explanation of the occurrence of the convulsions in that case than that of eclampsia.

Dr. J. O. Walker, of Franklin, has been kind enough to furnish me with the following data of a case occurring in his practice:

Mrs. W., age 24, became pregnant the first time in December, 1921. Being a school teacher and an exceptionally intelligent woman, she placed herself under his care at once. She gave a family history of having had one sister to die of puerperal eclampsia and another from some other obstetrical complication, and hence both patient and physician were put on guard, and she was most carefully watched, and no measure neglected that would tend to prevent toxemia. The blood pressure remained around 110 Sys., no albumen, no edema, slight or no headache, and she continued her occupation of teaching in the public school.

Suddenly, without warning on April 21, 1922, when she was four months pregnant, she had blind headache, quickly followed by convulsions, which came on, one after another, rapidly until she had eight or ten. She was found to have a B.P. of 200 and 4 plus albumen. An attempt was made to produce abortion by dilating and packing the os and waiting for the uterus to empty itself, but as the convulsions continued in spite of all efforts to control them, the patient was anesthetized, the os forcibly dilated, and the uterus emptied mechanically as quickly as possible.

She had two or three postpartum convulsions, after which she made a satisfactory recovery. The B.P. returned to normal, and the albumen promptly disappeared from the urine.

This patient remained in perfect health for six years, B.P. uniformly 110, no albumen, and no evidence of hypertension, when she again became pregnant. Being especially anxious for a baby, every effort was put forth to carry her safely through her pregnancy, and she was looked after most carefully, and she herself cooperated most faithfully and intelligently. She continued to have normal B.P. and no albumen until the seventh month, when she again quite suddenly developed severe headache, and the B.P. went to 210 with 4 plus albumen. Hoping to forestall convulsions and to give her a live baby, she was at once carried to

the hospital, where, after careful consultation, Cæsarean section was done by Dr. L. E. Burch. The baby died, and, six hours after operation, the woman had a convulsion, followed by several others before they could be controlled. She again recovered and has continued well until this time, with no hypertension, no albumen or other evidence of nephritis, and no convulsions. If this explosion at four months in the first pregnancy was not puerperal eclampsia, what was it? Williams, in the latest edition of his textbook, quotes Zeimfel as reporting a case of eclampsia at three months.

Dr. Arthur King, of New Orleans, discusses "Eclampsia Without Convulsions" in *A. M. A. Journal* in 1933. As the word "eclampsia" means convulsions, the title of this paper is perhaps a misnomer. Nevertheless, as he states, it has the sanction of many authors. He has collected forty-four cases in medical literature, of which more than thirty came to autopsy, all of which showed the pathological picture of eclampsia with convulsions, viz: necrotic lesions in the liver, punctate cerebral hemorrhages, typical kidney of pregnancy, etc. He reports one case as early as three months. It is not unlikely that other such cases have occurred, which, on account of rarity of eclampsia in early months, went unrecognized.

Whether or not I am justified in this contention, it will be conceded that we cannot begin too early to take the B.P. and look after the urine of the expectant mother, and to institute treatment when there is even slight hypertension or even a trace of albumen in urine. Albumenuria alone, without hypertension, edema, or other symptoms of threatened eclampsia, is a danger signal.

Treatment consists chiefly of dieting, and in this quantity even more than quality is important. The majority of such cases will confess to an abnormal appetite, and, as a rule, the quantity consumed should be drastically cut. There seems no justification in simply prohibiting protein, as the renal function is, as a rule, not impaired, and the tendency, even in nephritis, is towards a more liberal use of protein, and the quantity of protein consumed should only be lessened along with that of other foods. Salt should be left strictly out of the diet, and

water, unless there is edema, used freely. When albumen, hypertension, and edema are all present, the patient should be put to bed, fluids restricted, and a near starvation diet enforced. Sometimes a strict milk diet seems effective. To avoid acidosis or hypoglycemia, glucose is given by mouth or rectum. Magnesium sulphate is given daily, and I still consider Basham's mixture, iron and ammonium acetate, a valuable help.

At the Rotunda Hospital in Dublin, as well as in other maternal clinics, it is advised that, unless the albumen disappears or markedly lessens in three days, labor be induced. While I have never been quite bold enough to induce labor for simple albumenuria, statistics carefully compiled by Waldstien and others seem to justify this procedure, as the death rate in every series is lessened thereby.

This should be postponed, the welfare of the mother permitting, until the child is viable, and, of course, should not be done without consultation. It can usually be safely done in the home, under the conservative plan, viz: dilating and packing the os, introducing the rubber catheter, puncturing the membranes, the cautious use of small doses of pituitrin, and waiting for nature to empty the uterus.

The next stage is one to which Williams has given the name of eclampsism, by which he evidently means similar to eclampsia—i. e., in case of death showing the same pathology, and in life the same symptoms minus the convulsions.

In this we have increased B.P., 150 or above, albumen in abundance, and edema, all of which call for vigorous treatment, strict confinement to bed, absolute quiet, purgation by magnesium sulphate, administration of glucose by stomach and rectum, or intravenously if patient cannot be induced to take it otherwise. Headache and restlessness are usually present, and for this chloral hydrate is a valuable remedy, given even if drowsiness or stupor is present. In the *A. M. A. Journal* of June 2, 1934, Fantus, in "The Therapy of the Cook County, Illinois, Hospital," speaks of chloral as that remedy which, even yet, possesses the greatest hypnotic or sleep-producing



power, per price unit, and is especially indicated in hypertension. In children, he advises its use per rectum, even when pain is present, in preference to opium. It is a powerful drug and should be used with caution, of course, and should not be used when the circulation is enfeebled. In eclampsia, as well as eclampsism, it should be used boldly and in full doses, 20 to 30 grains, and it is certainly more uniform and certain in its effects than any of the other "Als." Just now, while the remedy is still held by the profession, in a measure "sub judice," an exception should probably be made in favor of sodium amytal. This remedy can be given in from 6 to 12 grain doses. Within the past year, it has given me most gratifying results in two cases of eclampsism, has apparently kept off the convulsions, hastened dilatation, and has not retarded labor. After making due allowance for the enthusiasm which frequently greets a new remedy, plausibly exploited by the manufacturers thereof, sodium amytal seems to be the most valuable addition of recent years to our obstetrical drugs.

In eclampsism, even more than in simple albumenuria, it holds good that labor should be induced after three days of intensive treatment, unless the threatening symptoms have markedly subsided.

Unfortunately, in spite of the educational efforts of all agencies, lay and professional, many pregnant women never have any prenatal care, and, unfortunately too, sometimes our most vigorous and well-directed preventive measures do not avail, and true eclampsia supervenes.

The striking and typical picture is only too familiar to all who practice obstetrics—severe headache, visual and mental disturbances, nervousness, drowsiness, stupor, and convulsions. No other emergency of a general practice creates quite so much consternation among family and attendants, and no other calls quite so loudly for prompt action upon the part of the doctor.

In even so urgent an emergency as this, radical measures are no longer advised. Accouchement force is a most radical measure, and compared to it Cæsarean section is the more conservative. It probably has no place in obstetrics, save in hyperemeses

gravidarum, and in those exceedingly rare cases of eclampsia gravidarum in the early months of pregnancy such as Dr. Walker's case reported above.

Dr. Solomon, of Dublin, says that in the Rotunda Hospital Cæsarean section is never resorted to except in deformed or contracted pelves, or where there is abnormal disproportion between the size of the pelvis and fetal head. He says that it is still used by "gynecologists or surgeons, who sometimes practice midwifery, but never by obstetricians who practice the science and art of obstetrics."

In adopting the conservative treatment, the question naturally arises as to whether or not the welfare of the patient and her baby, which, of course, should be the chief consideration, demands that she be transferred to a hospital. That depends upon the accessibility of the hospital, the home surroundings, and the stage of the pregnancy. If the home is a comfortable one with ordinary conveniences, and intelligent and willing attendants can be found, it is probably just as safe or safer to keep her at home and avoid the confusion attendant upon transportation to the hospital. If labor has already begun, with our present methods of controlling convulsions, it certainly seems justifiable to attempt to care for such a case at home.

When this is attempted, it is incumbent upon the attending physician to get busy without being hurried or losing his poise, and if possible to keep the family and attendants from becoming panicky, as a quiet, level-headed nurse is an indispensable adjunct to the management of such a case.

Some modification of the Stroganoff method is now used in all maternity hospitals, and some such method should be adopted and routinely followed as closely as possible in the home management. That of Williams and Stander, the most important details of which can be fairly well carried out in the home, is one of the easiest to follow.

During the convulsion the patient is turned on her side, a padded tongue depressor is placed between the teeth, and, as the convulsion subsides, the mucus is wiped from the mouth and pharynx; one-fourth to



one-half grain morphine with hyoscine 1 2000 grain given hypodermically at once. The room is darkened, and the strictest quietude enjoined. If patient becomes conscious, magnesium sulphate should be given and water freely. One hour after the morphine, 30 grains of chloral hydrate, or perhaps better, six to nine grains of sodium amytal, is given. If convulsions recur, or if the patient becomes restless and violently delirious, as such patients frequently do, chloral hydrate should be repeated in half an hour, or if she remains comatose or it becomes impossible to administer the chloral, sodium amytal can be given intravenously,  $3\frac{3}{4}$  to  $7\frac{1}{2}$  grains. Two hours later, unless narcosis is marked, morphine and hyoscine are again given. If patient remains comatose, fluids, plain water, or, better still, glucose solution should be given, by the bowel or intravenously.

No chloroform to control convulsions, no effort made to bring on or hasten the labor until the convulsions are under control, and no artificial delivery attempted until the os is fully dilated. At or near full time, convulsions have a tendency to initiate labor, and, during labor, seem to hasten dilatation. Unless the labor comes on, the patient should be kept fully under the chloral or sodium amytal for twenty-four hours or longer, before we can feel safe from a return of the convulsions. Williams and Stander warn against catharsis, excessive sweating, or venesection in excess of 200 cc. I give magnesium sulphate not only for the purgative effect, but also for its recognized quality of drawing fluid from the brain, lessening edema, helping in controlling convulsions, and guarding against cerebral hemorrhage. I practically always bleed, but of late years never withdrawing exceeding eight ounces of blood. This has never seemed to do any harm even when there is weak circulation. It lowers B.P. and seems to exert other beneficial effects as attributed to magnesium sulphate above.

Just a word as to pathological finding in eclampsia. The most uniform finding, the one most often present, is punctate hemorrhage and necrotic areas in the liver. Chloroform is supposed to be followed oftentimes by precisely the same pathological changes in the liver. Hence, its obviously justifiable prohibition in eclampsia.

Toxemia of pregnancy is supposed to occupy the sole or most prominent place in the etiology of puerperal eclampsia. Why does the toxemia of pregnancy cause one patient to have hyperemesis, another yellow atrophy of the liver, another accidental hemorrhage, and another eclampsia? No one seems to know. A tradition of the early years of my practice, which still is sometimes heard, is that a sick pregnancy is usually followed by a safe and easy labor. Whether or not there is anything to this, I have never in my own work had a case, where there was hyperemesis in the early months, to have eclampsia later. Is the hyperemesis one of nature's efforts to eliminate the toxemia? We speak rather glibly of the toxemia of pregnancy, and yet no one has yet found this toxic agent in the blood or any organ of the body. In eclampsia, this toxic agent, whatever it is, seems to have exerted its harmful effect upon the capillaries; and hence we have punctate hemorrhages in the liver, kidney, and brain, together with the immediate or delayed after effect of such hemorrhages in these organs.

Let me again stress the importance of getting hold of our obstetrical patients as early as possible, even before they become pregnant if they will give us a chance. Whatever may be said about the lack of improvement in our obstetrical mortality and morbidity, there is no question but that eclampsia is becoming increasingly rare in country practice, under our preventive measures, and modern conservative treatment has certainly favorably influenced the mortality thereof.

## ABDOMINAL PAIN OFTEN A SYMPTOM REFERABLE TO THE KIDNEY\*

GEO. R. LIVERMORE, M.D., F.A.C.S., Memphis

**A**BDOMINAL pain as a symptom of some lesion of the kidney is not rare. You have doubtless seen many cases of ureteral or kidney colic in which the pain was located in the abdomen. As nausea and vomiting were present, and there was some tenderness and distention of the abdomen, it simulated acute intestinal colic, appendicitis, or cholelithiasis.

The diagnosis of such cases is often confusing, but if a urinalysis is made, pus, blood, albumin or bacteria, one or all of them, will be found. Pus may be in such small amount as to be reported, by the laboratory, as an occasional, or even a rare, pus cell, but is always present (unless there is complete blockage of the ureter, and when this occurs there is usually a calculus anuria which immediately focuses attention on the kidneys), and this should not be overlooked, as it may prove the only symptom that leads to a correct diagnosis.

I do not wish to convey the impression that every case with acute abdominal pain, who has a few pus and blood cells in the urine, has some kidney lesion, for, as you know, the toxins of acute infections frequently cause sufficient kidney irritation to give rise to pus and blood in the urine. I do, however, wish to impress upon you the fact that pus and blood are not normal constituents of urine, and when found are due to some pathological condition. Therefore, when we find them in a specimen, it is incumbent upon us to determine the cause of their presence. If due to some constitutional disturbance, then this should be treated, and in addition some alkaline diuretic should be administered to prevent injury to the kidneys. We physicians in the past have been too prone to treat symptoms, and in many cases this was all we could do, but, with the improved methods of diagnosis

now at our command, especially in urology, no case of pus or blood in the urine should remain undiagnosed, unless it is impossible to obtain the services of a competent urologist.

A case of mine that well illustrates this was that of a woman, age 36, who gave a history of repeated attacks of right-sided abdominal colicky pain dating back to early childhood. These attacks were usually associated with nausea and vomiting. When she was 17 years old, a noted Southern surgeon diagnosed her case as chronic appendicitis. He operated and removed a normal appendix, and punctured a small cyst in the right ovary. As her attacks of pain continued, she consulted several diagnosticians, and was under various treatments for intestinal indigestion, colitis, or cholecystitis, until she was 27. Having experienced no relief, another physician said she had a gastric ulcer, and he put her on the Sippy diet, and kept her in bed two months. She was somewhat relieved by this treatment, but on getting up, despite the continuation of the diet, her acute attacks returned. She continued to diet, rest, and suffer for nine years, when she finally came under my observation. A urinalysis showed one or two pus cells to every two or three high power fields. But upon cystoscopy and X-ray both ureters were found to be dilated, torturous tubes, which easily accounted for her symptoms. By the failure of all her previous medical advisers to realize the significance of a few pus and blood cells in the urine, this woman has been condemned to suffer periodic attacks of cramps from dilated and torturous ureters that will necessitate catheterization, dilatation, and irrigation at two or three months' intervals probably as long as she lives. (Slide.)

It is not unusual to see patients who have been subjected to several operations without relief before the true cause of their suffering has been located in the kidney or

\*Read before the Tennessee State Medical Association, Chattanooga, April 10, 11, 12, 1934.



ureter. I have a married woman under my care now, age 22 years, who came to me in August, 1930, with a history of attacks of severe colicky pains in her lower right quadrant, often accompanied by nausea, vomiting, and flatuency, dating back to January, 1930, when her appendix had been removed. As this did not relieve her pain, her gall bladder was drained, and, as her cramps continued, her right tube and ovary were removed, and a Gillam operation for retroversion was done. As she still continued to suffer, she finally came under my care, and a urological study revealed a large right hydronephrosis, a dilated right ureter, and a beginning left hydronephrosis, with pus and colon bacilli in both kidneys.

Had this woman been given the benefit of the examination which her physician should have demanded when he found a few pus cells in her urine, she would have been spared the pain, morbidity, and expense of so many unnecessary operations.

Another case is that of a young Greek, who came with a history of several attacks of nausea and vomiting, accompanied by colicky pain in his lower left quadrant (it is lucky for him that his pain was in the lower left quadrant, for had it been in his right, he would, doubtless, have been operated for appendicitis), and, although both pus and blood cells were found in the urine, his physician never suggested a urological examination, but was content to merely prescribe 30 grains of potassium citrate four times a day.

His attacks continued for about a week, then subsided, and he was relieved except for a dull ache which finally disappeared after he had taken three bottles of potassium citrate. He had no trouble for a year, when the colicky pain, nausea, and vomiting returned. As he was visiting some patients of mine, I was called to see him. On my arrival, he begged me to give him a prescription for the clear, salty medicine that had relieved his pain for nearly a year. I found a few pus and blood cells in his urine; so few in fact that the laboratory report stated, "Urine normal. Pus and blood cells so few probably due to irritation from condition outside the urinary tract." Upon a

thorough urological examination, we found a completely rotated left kidney, which caused obstruction of the left ureter from kinking, thus producing hydronephrosis with complete destruction of the kidney." (Slides.)

Recently we saw an unmarried woman, age 46, who had suffered for two years with vague pains in her abdomen, gaseous distention, and, at intervals, severe pain in her upper left quadrant. Her urine contained a trace of albumin, a few hyaline casts, and a few pus and red blood cells. She was extremely nervous, and, being at the menopause, her physician put her on hypos of Thellene, which improved her nervous condition, but had no effect on her pain. Finally, she came under the care of a doctor friend of mine. As he found pus, red blood cells and a trace of albumin in her urine, he ordered an X-ray and this showed four shadows simulating stones in the left kidney. He, therefore, referred her to me. Upon a complete urological study, I found the shadows to be outside of the kidney, but I did find markedly ptosed kidneys, with a kinked and dilated left ureter, and a right kidney so low the ureter curved upward in a bow, before passing downward to the bladder. Pus, red blood cells, and colon bacilli were found in both kidneys. A well-fitting support and dilatation of the ureters afforded great relief. (Slide.)

Another case, seen in January, 1934, is that of a married woman, age 25, who for the past four and one-half years has had a constant, dull, aching pain in the region of her umbilicus, and in her upper left quadrant. She has suffered repeated attacks of nausea, vomiting, gaseous distention and acid eructation. There has been frequency, but no burning or pain on urination, and no nocturia. As she is extremely nervous, she attributed her frequency to nervousness.

In her upper left quadrant, there is a mass about four and one-half inches long and three inches wide. It is tense, tender, and fluctuating on palpation. She has been able to palpate this mass for the past four months, and she said it seemed larger at one time than at another. A urinalysis showed negative except for an occasional



pus and a rare blood cell. She has one child four years old, and her symptoms date from the third month of this pregnancy. Her physician told her the pain was due to the enlarging uterus, and would subside after delivery. When it did not, he attributed it to nervousness.

On cystoscopy and X-ray, I found a very large left hydronephrosis that had completely destroyed her left kidney, and there was a beginning right hydronephrosis, and a dilated and kinked right ureter. A left nephrectomy and dilatations of her right ureter and pelvic lavage have made her feel that she is well. The carelessness of her physician in neglecting the urinary findings of a few pus and blood cells almost cost this woman her life, and doomed her to repeated cystoscopies, which have given her freedom from pain and suffering, but may never be able to restore her right kidney to normal. (Slide.)

The last case I shall cite is that of a married woman, age 40, who has suffered for one year with dull, aching pain in her epigastrium, backache, nausea, vomiting,

and constipation. At times she has had sharp, colicky pains in her lower abdomen. A urinalysis showed a trace of albumin, a number of red blood cells and a few pus cells. Upon cystoscopy and X-ray I found a large calculus filling the pelvis and calyces of her left kidney. (Slide.)

Dr. E. Smith, in the March, 1933, issue of the Canadian Medical Journal, cites three cases with gastrointestinal symptoms, pain, nausea, and distention, with renal calculi, and all relieved by removal of the stone from the kidney.

I could continue citing such cases until I taxed your patience, if not your credulity. They are so common, however, every urologist is having the same experience. The reason that such is the case is the generally accepted, but equally fallacious, view that normal urine contains a few pus and blood cells, and their presence is of no significance.

I take this opportunity to challenge this statement and to tell you that it is entirely erroneous, wholly misleading, and positively unjustified by the facts. In witness of which the above cases are cited.

## UNDISTORTED RADIOGRAPHY IN OBSTETRICS\*

EDWARD F. BUCHNER, M.D., Chattanooga

MANY authorities throughout the land attest the harmlessness of the diagnostic X-ray in obstetrics and advocate its wider usage in selected problems; one already urging it for every primipara. Technical difficulties in obtaining satisfactory films and interpretations have undoubtedly limited its value to those who have developed and become adept at special methods. Thoms of New Haven and Walton of Baltimore, in company and contemporaneously with many others, have worked for radiographic mensuration in the study of dystocia of maternal and fetal maldevelopments, border-line pelves, and malpresentations. The chief and common problem has always been that of obtaining accuracy in the correction of the magnifying divergence of the X-ray. You are all familiar, I am sure, with the several techniques advocated so that it is necessary to describe briefly only the two most widely accepted. Thoms makes one anteroposterior film, and then superimposes a centimeter marking by a second X-ray exposure through a drilled lead plate, held at the estimated position of the fetal vertex or maternal pelvis to be measured. Readings are automatically corrected by this similarly divergent set of centimeter markings, but the accuracy of these markings may vary with the skill of the examiner. Walton takes three films, one anteroposterior with the superior strait parallel to the film, one anteroposterior with the patient lying flat, and one laterally. Care is taken to keep the tube, object, and film distances equal in all positions and within the range of Walton's divergence chart, with which the measurements are calculated.

However, to avoid distortion of the image within the limits of practicability, let us suggest that you take teleoroentgenograms, particularly lateral teleoroentgenograms. These will record prenatal findings directly and without bias. Use the six-foot tube dis-

tance, 10 milliamperes at 90 to 110 kilovolts peak for forty seconds with the Potter-Bucky diaphragm. Have the patient lie on her back at a right angle to the path of the ray with the cassette held vertically to assure a true lateral picture. There will be no magnification of the image necessitating correction, and the most important measurements may be taken directly from this one film. The fetal biparietal diameter is the cephalic diameter desired, and the one usually found, and the anterior or posterior tendency of the fetal spine is readily seen in both vertex and breech presentations. The thickness of the maternal soft parts separating the fetal and maternal bony structures can frequently be clearly traced. The true conjugate can be measured from the sacral promontory to the antero-inferior border of the superimposed acetabular rings, as we found this represents the inner or obstetric surface of the symphysis pubis in these films.

In this simple manner, no special apparatus or difficult patient position is necessary, only one 14x17-inch film is used, and from that the most important diameters are read directly with an ordinary centimeter ruler. Although the structural details of the bones are not so clear as yet as in the shorter distance techniques, there is no question of the profiles to be measured. X-ray machines of greater capacity will be valuable. When used in addition to physical examination in case problems of anticipated or possible bony dystocia, this method is of great assistance and in our experience has always been exact. I wish to express my appreciation to Drs. S. S. Marchbanks, F. B. Bogart, and R. P. Ball. Allow me to demonstrate a few of these radiographs.

## BIBLIOGRAPHY

- Thoms, H.: "Fetal Cephalometry in Utero." J. A. M. A. 1930, 95, 21-24. "Determination of Fetal Maturity in Utero." A. J. Obs. Gyn. 1930, 20, 807-811. "Clinical Significance of Roentgenometry in Obstetrics." J. A. M. A. 1934, 102, 602, 603.

\*Read before the Tennessee State Medical Association, Chattanooga, April 10, 11, 12, 1934.



Walton, H. J.: "Roentgenological Pelvimetry and Intrauterine Cephalometry." S. G. O. 1931, 53, 536-538. "Intrauterine Roentgen Cephalometry and Pelvimetry." A. J. Roent. and Rad. Ther. 1931, 25, 758-760.

Schrier, P. C., and Reinberger, J. R.: "The Value of X-ray in Obstetrics." J. Tenn. State Med. Soc. 1932, 25, 24-26.

#### DISCUSSION

DR. S. S. MARCHBANKS (Chattanooga): So far as I know, this idea of six-foot projections for pelvimetry is original with Dr. Buchner. He reasoned that, if a six-foot exposure gave accurate heart dimensions on the film, it should apply in obstetrics.

The principle is simple and practical. It is readily understood that, if a beam of light is very near an object, it casts a shadow larger than the object, and that, the farther away the beam originates, the nearer the actual size the shadow will be. Beyond six to seven feet there is no practical decrease in the size of the shadow of the object, so we used six feet in these exposures.

The technic used was 10 ma., 90 to 100 K.V., 40 sec. at 6 feet, using 1 mm. aluminum filter. The voltage is varied in proportion to the thickness of the object (the patient). This is pretty hard on the tube, but several of the newer types will do the trick.

The question may arise as to the danger to the mother and child from such exposure. There is no danger, and to illustrate, 10 ma. at 90 K.V.,  $2\frac{1}{2}$  minutes at 12 inches would be approximately an erythema dose. Since  $2\frac{1}{2}$  minutes is 150 seconds, or 1500 milliamperere seconds, and the 10 ma. at 40 seconds is only 400, you see a wide margin of safety; but at six feet, as compared with one foot, there is absolutely no danger, since the effect of radiation varies inversely to the square of the distance. In other words, at two feet the effect is one-fourth the effect at one foot; at four feet it is one-fourth of that at two feet, etc., so that at six feet it is approximately one sixty-fourth an erythema dose, and about one-half of that reaches the child.

This method is a simple, practical, and definite advance in the ability to obtain most accurate and complete prenatal examination findings, especially where limited space increases the need for accuracy.

DR. JOHN S. CAYCE (Nashville): In obstetrics, we are very prone, as in other branches of medicine, to accept new things in our efforts to make diagnoses. Perhaps the newest thing in making diagnoses as to the relation and position of the fetal skull in the maternal pelvis is the use of the X-ray. The X-ray should be used as a means of assisting us in our determination of the relationship of those two factors, the fetal skull and the maternal pelvis, rather than as a final determining factor as to what means we should use in delivering the baby. If we have been careful in our use of our pelvimeter and other means that we have of physically examining our patient, we may find that an X-ray is not essential to a determination of what we shall do. Yet, as in all other branches of medicine, we should not overlook the fact that, coupled with our other findings, our X-ray findings may give us invaluable information as to what course we should pursue.

When a method has been simplified, such as the doctor has brought to our attention, it is true that that method can be more generally used by men who are not necessarily specializing in X-ray technic. It makes a great deal of difference how the picture is made as to what value that picture will give us. At the General Hospital in Nashville, we are doing some of that sort of work, trying to determine just what value it is to us, and we have developed almost identically the same method that the doctor is using here in his pictures. We find it a great deal of aid to us in determining what we shall do in handling our cases.

We have tried first, though, in practically all of them, to determine what we should do previous to our X-ray examination. Then, with the use of the X-ray, we have either sustained or contradicted our previous opinion of what we should do in that case.

I think it is certainly to be urged that, wherever it is possible, added to our other means of diagnosis, we should always resort to the use of the X-ray; particularly in those cases where any dystocia from improper relationship between the presenting part and the maternal parts is suspected, it can be of great aid to us in the handling of our cases.

## A GROUP OF DISEASES DEPENDENT UPON PARANASAL SINUSITIS AS THE CAUSE

N. E. HARTSOOK, M.D., Johnson City

THIS DISCUSSION was inspired by the hope that it may promote a closer cooperation between the pediatrician and the general practitioner on one hand and the otolaryngologist and the ophthalmologist on the other, in a concerted effort to establish accurate diagnoses and institute rational treatment of a large group of diseases. Some of these are exceedingly grave, others are not so severe but still are serious, and all are comprised in the borderline field which is common ground, and in which all can work with the best interests of the patient as the common goal at which all can aim.

Some of the diseases mentioned in this discussion may be caused, infrequently, by oral or throat infections. But it is apparent from the volume of literature which has appeared during recent years that paranasal sinus infections in adult patients, and in children infections of the mastoid region as well, take precedence in the etiology of the diseases under discussion. Several diseases resulting from sinusitis may in turn involve additional pathologic conditions, that may be reflected, finally, in the eye grounds and visual fields. Other diseases in this group may eventually give rise to conjunctivitis, keratitis, iridocyclitis, retinochoroiditis and optic neuritis. Many of the sinusitis-induced diseases may become vicious circles involving a wide range of exceedingly grave possibilities and frequent actualities.

Hurd, Beard and other prominent observers believe there are three primary systemic conditions that derange the normal functions of the membranes in the upper respiratory tract and give rise to bacterial invasion of the sinuses, namely, vitamin deficiency, especially vitamins A and D, endocrine imbalance and allergic sensitivity. One or all of these conditions may be present in the same individual. They cause a loss of tone in the membranes followed by chronic turgescence and, finally, invasion of the bacteria normally present in the nose.

For several years leading medical observers have been coming to the growing con-

viction that many of the acute, subacute and chronic diseases of the thoracic structures are dependent upon subacute and chronic infections of the nasal sinuses. The disclosures brought to the attention of medical men by the extensive research work conducted by Mullin, the pioneer in this field, Quinn and Meyer, McLaurin and others have been so convincing that this theory is no longer an opinion but is generally accepted as a well substantiated fact. Less frequently but no less certainly this is a source of infection that gives rise to diseases in other parts of the body, notably the kidneys including different types of acute nephritis, nephrosis and pyelitis.

Mullin definitely demonstrated the relationship between sinusitis and diseases of the chest and other structures by the disclosures of a long series of experiments on rabbits. He injected india ink into the sinuses, especially the antra, of a number of rabbits. After a varying number of injections and varying periods of time the rabbits were killed. At necropsy he found carbon deposits, varying in quantity according to the amount of india ink injected into the sinuses of the several rabbits respectively, in the submaxillary and internal jugular nodes, the thoracic duct, the large veins, the mediastinal and paribronchial glands and the parenchyma of the lungs. Large portions of the lung substance, especially the apices, were black. Carbon was found also in the heart, the spleen and the kidneys, thus demonstrating that when bacterial toxins once reach the heart they may be sent out to all parts of the body. He induced advanced pulmonary tuberculosis in other rabbits by injecting emulsion of tubercle bacilli in the antrum within a period of seven weeks following the injections. These experiments conclusively demonstrated the lymphohematogenous route of metastasis from the sinuses to the chest and other organs.

McLaurin conducted a series of experiments on human subjects. He filled all the sinuses with lipiodol by the Proetz displace-



ment method. Quinn and Meyer conducted similar experiments on human subjects under the influence of an hypnotic using a small rubber tube in one nostril into which iodized oil was dropped. After these experiments, roentgenograms clearly showed deposits of the radiopaque oil in the chest. These experiments disclosed the aspiration route by which the infection is transferred from the sinuses to the chest.

The third route is by continuity of the respiratory membrane which is in a more or less constant bath of infectious matter from the sinuses to the chest structures.

Any one, or all, of these routes of metastasis from sinus disease to other body tissues may be operative singly or concurrently, and give rise to a sequence of grave diseases, many of which first appear in childhood and continue a chronic course into adult age.

In a study of the systemic conditions in children resulting from infection of the nasal sinuses Dean summarizes as follows: "Cardiac lesions, rheumatic fever, chorea, nephritis, pyelitis, certain types of cyclic vomiting, deforming periarthritides, anemia, anorexia, malnutrition, chronic digestive disturbances and acute toxemia." He points out that asthma and bronchiectasis are remote effects more or less peculiar to paranasal sinus disease.

In the progress of the chronic diseases dependent upon nasal sinusitis there is no line of demarcation between the age of childhood and the subsequent years of adult age. Observers generally are in common agreement that a large proportion of the sinusitis-induced chronic ailments manifested at varying periods of adult age first appear in childhood and continue a slow course in a masked, latent or subacute type, in many instances, for a long period of years.

It would be impossible to discuss comprehensively very many of the diseases included in this group in an essay of this length. Therefore, I invite attention to a consideration of some of the most outstanding diseases dependent upon paranasal sinusitis as the paramount cause. I shall omit mastoid infection in this discussion except merely to mention it, incidentally, as occasion demands.

Gastrointestinal intoxication in infants

and very young children, involving very profound nutritional disturbances, is frequently preceded or accompanied by paranasal sinus infections, even though these foci be latent or subacute and masked. Some of these patients, especially infants, soon develop a fulminating form of gastroenteritis characterized by extreme intoxication, watery diarrhea, vomiting and dehydration which may terminate in death in a very short time, in some instances in a few hours.

A much larger proportion of these young patients remain indefinitely undernourished, with the pallor of anemia and a drawn, pinched expression, with periods of apparent improvement soon to be followed by acute exacerbations of a pre-existing gastrointestinal disturbance, with further depreciation of the nutritional balance and an acceleration of general debility. This milder form of intoxication may assume, at any time, on the incidence of a cold, some error in diet or some times with no appreciable exciting cause, an alarming aspect manifesting symptoms of the gravest character.

Marvin F. Jones, of New York City, points out that frequently after the causative infectious foci, to all appearances, have undergone resolution, various disturbances may appear. But it must be remembered that in such cases the apparently resolved foci yet contain in the latent form a slow-acting, insidious infection, but still sufficiently potent to give rise to a train of alarming symptoms on the occurrence of even trivial exciting causes. Jones, in referring to this class of patients, states as follows: "Food refusal is manifested early; pallor is marked; the bowel movements become irregular and a failure to gain in weight is the result. As the disturbance progresses, nausea and vomiting occur, and a diarrhea with dehydration ensues. Acidosis accompanies these symptoms. Physical examination and laboratory data indicate no other organic changes. Changes in feeding formulae offer no permanent relief." This quotation from Jones refers more particularly to mastoid infection, but it is understood to include sinus infection also.

Marriott states: "Infections of the nasal

accessory sinuses can occur, even in young infants, as certain of these sinuses are developed at birth. Infection of the maxillary antra can bring about the same symptoms as infection of the mastoid, and this fact should not be overlooked in searching for the causes of nutritional disturbances." Jeans concurs with this statement and emphasizes the gloomy picture of profound alimentary intoxication brought about by paranasal sinusitis in babies and young children.

But, so far as I have seen, authorities are in agreement that alimentary intoxication is neither the most serious nor the most frequent disease complicating sinus and otitic infections in children. Jones remarks: "Among the concurrent diseases the most outstanding are the pneumonias with broncho-pneumonia predominating." He divides the pneumonias into two groups: those occurring just before or following soon after the active stage of the causative infection, "and those classed as terminal pneumonias occurring shortly before death." These children usually have a purulent post-nasal drainage and, most of them being mouth-breathers, the infected matter is drawn by aspiration directly into the bronchi and in this way many of the pneumonias, especially broncho-pneumonia, are brought about. *Much, if indeed not a majority, of the pneumonia incident to children properly may be attributed to sinus infection.*

There is a large group of older children, including those from a few years up to pre-adult age, in which the occurrence of sinus infection is quite frequent, and gives rise to a great variety of symptoms and associated pathology. A condition resembling tuberculosis is one of the most frequent manifestations. These children are anemic, pallid, languid, and may have a rise in the evening temperature. Frequently a chronic cough and rales are present. The appetite is poor and underweight is frequently marked. Roentgenograms frequently show a large hilus shadow that may involve more or less of the lung tissue on both sides with dense areas which appear to be calcified. Peribronchial thickening is frequently extensive and dense. The clinical picture, together with the X-ray findings, alone would ap-

pear to justify a diagnosis of tuberculosis which is the most frequent diagnostic error. In these cases tuberculosis can be eliminated and a correct diagnosis established only after a thorough examination of the nasal sinuses by inspection, transillumination and X-ray with the patient's head placed in varying positions, and, finally, by the use of properly conducted intradermal tuberculin tests. The correct diagnosis will be found to be infection of some type involving the bronchial glands.

When once the chronic form of bronchitis, peribronchitis or bronchial asthma is well established bronchiectasis or emphysema are the terminal and incurable stages of the involvements of the chest structures that may continue indefinitely into adult age. The enlarged bronchial and peribronchial glands exert pressure on the smaller divisions of the bronchi and thus, in mechanical way, interfere with the act of raising and expelling secretions which are retained in residual quantities. Then weakening of the bronchial musculature develops, giving rise to dilatation and sacculation with further retention of secretions. Finally well-developed bronchiectasis ensues. The pulmonary alveoli may become dilated and alveolar walls thinned out, thus adding emphysema to the gloomy clinical scene. From the beginning the more or less constant cough is a powerful contributory factor in bringing on these final distressing end results.

The largest group of older children afflicted with sinus infection comprises the patients who may be undernourished, who are usually more or less anemic, and who may have snuffles through the fall, winter, and spring months. Many of them have a discharge of varying character from the nose and nasopharynx which may be slight or copious. The nasal tissues are usually congested, hence most of them are mouth-breathers. Frequent colds, except in warm weather, is the rule. Some of them have a succession of colds with cough and sneezing. A child of this type is always susceptible to pneumonia, even though he may not have it. These children are never very well and, with the exception of influenza, pneumonia or some acute disease to which all of them are liable, they usually are never very sick.



The clinical picture of this group presents a wide variety of symptoms simulating in many ways the symptom complex attending diseased tonsils and adenoids.

It is from the ranks of this large group that many of the tonsillectomy enthusiasts in general marshal a large number of indiscriminate operative subjects. It is much easier, much quicker, requires far less knowledge and skill and is much simpler in every way to look into a child's throat and advise tonsillectomy than it is to conduct a thorough, painstaking examination of the paranasal sinuses, intelligently evaluate the clinical findings leading to a definite differential diagnosis of sinusitis and skillfully carry out the indicated medicinal and surgical procedures. All of us have seen many patients who received no benefit whatever, following a tonsillectomy. It may have been that these patients were in fair health before the tonsillectomy and the tonsil infection was a very minor affair. In such instances no benefit could reasonably be expected to accrue. Some of these patients may have infected tonsils concurrently with the sinus infection. However, to remove the tonsils and allow the sinusitis to remain untreated could be of very little benefit to the patient, especially if his sinus infection were the more important condition.

From the many references to this matter in the literature it appears that many of the outstanding otolaryngologists deplore the needless tonsillectomies that are being done on slight or no evidence of tonsil infection when, in reality, the whole trouble will be found, after careful search, to be due to nasal sinus infection; and that so many men are doing tonsillectomies who are not prepared either by training and experience or the necessary facilities and instrumental equipment to make a differential diagnosis of sinusitis, or to treat the condition if it were made known to them. When it is seen that these sinusitis cases receive but little or no benefit from a tonsillectomy they must, finally, come under the care of the otolaryngologist.

Shea conducted a series of observations on children whose tonsils and adenoids had been removed before the age of puberty, that is, twelve to fourteen years of age, in comparison with other children who had

retained their tonsils and adenoids up to this age with reference to the role enacted by tonsils and adenoids in the incidence of nasal sinusitis in all children before puberty. Shea is convinced that in all children under the age of adolescence who have lost their tonsils and adenoids the incidence of sinusitis is far more frequent than in those who have retained their tonsils up to this age limit. He quotes a list of statistical figures in support of his contention. In explanation of the ground for his belief Shea says: "The logical explanation of this is that the sinuses play some part in the development of immunity in upper respiratory infections. The secretion found in an acute nose during the early stage of an inflammation is not only a physical protection to the membranes, but has *bactericidal* powers. When the tonsils and adenoids are in situ they aid in producing antibodies, and after their removal the sinuses are called upon to supply the deficiency. The ability of the sinuses is apparently limited and in time they fall prey to the infection they are combating." He points out that the interval between removal of tonsils and adenoids and incidence of sinus infection is usually two winters. They are free from sinus involvement during the first winter. He claims that the younger these children are at the time their tonsils and adenoids are removed the more susceptible they are to sinus infections, and "the tonsils being inhibited by the gonads after puberty, are not thereafter such a power in auto-immunity." If Shea's contention is correct there should be very definite indications for removal of tonsils and adenoids before children under the age of puberty are subjected to this operation.

I do not condemn the removal of tonsils and adenoids when the operation is clearly and definitely indicated, as any operation should be before it is undertaken. I am whole-heartedly in favor of the operation when, after a differential diagnosis, convincing evidences of its necessity are clearly apparent.

Prominent authorities in a number of large clinical centers report that in some instances of chronic sinusitis in patients of varying ages repeated attacks of severe abdominal pain, frequently attended by violent

vomiting, have been observed. In some instances the attacks resembled acute appendicitis very closely, and, occasionally, an erroneous diagnosis of appendicitis was made, the abdomen opened and the appendix found to be normal. When the sinus infection was discovered and the indicated surgical and medicinal treatment was instituted the attacks of pseudo-appendicitis usually ceased abruptly and permanently.

Acute nephritis in both the hemorrhagic and edematous types are peculiar to children and young adults, rarely occurring after the fortieth year of age. This disease is frequently dependent upon some focal infection in which the streptococcus is the prominent factor, hence streptococcic sinusitis, with the train of resulting complications that may follow, is a very frequent cause of acute nephritis. The ocular manifestations of albuminuric or hemorrhagic retinitis and papillitis may develop and become a serious menace to future acuity of vision.

Acute nephritis, when dependent upon unrelieved chronic infections, may lapse into the chronic form usually known as nephrosis characterized by a marked tendency to oliguria, albuminuria, hematuria, pyelitis and hypertension.

Longcope reports that he found streptococci in the nose and throat in 83 per cent of the patients under his observation who had recurrent nephritic hematuria, whereas 90 per cent of the patients who showed complete cessation of the hematuria were free from streptococci in the nasopharynx. There is, evidently, a very close causative relation between sinusitis and kidney affections of all types.

Bronchial asthma is not today regarded as a distinct disease entity. Taken together with the vasomotor rhinitis, with which asthma of all types is always associated, it is the principal part of a syndrome induced by some underlying pathology. Bronchospasm may be induced by electrical or chemical irritation applied to the nasal mucosa, the impulse being transmitted through the nasal network of sympathetic and motor nerves resulting in an irritation of the vagus. A very similar condition exists in many cases of rhinosinusitis and is a sufficient explanation of the incidence of asthma of the intrinsic type. In this connection the irritation of nasal contacts resulting

from malformations or vasomotor swelling of the nasal membranes must be taken under consideration in formulating a diagnosis.

But the question arises: What is the cause of extrinsic asthma? For many years we have been taught that this type is dependent upon allergic sensitivity to food proteins, plant and animal emanations and other toxins. But that is not a sufficient answer to the question. There is some underlying pathologic tendency that causes an individual to be hypersensitive. Ferris Smith believes that an infection is the main factor in diminishing the resistance of the respiratory membranes to the action of foreign toxins. In this connection Smith remarks: "It does not seem probable that the process is one of anaphylaxis because the infection and toxemia are *continuous* from the onset of the lesion, and it is only after it becomes chronic that asthmatic symptoms appear." McLaurin believes there is always an infection of the sinuses in these cases, and that its presence renders the membranes hypersensitive to the action of foreign proteins and toxins. He calls attention to such outstanding observers as Carmody, Green, Rackemann, and Tobey, who hold this view of the matter. Other observers believe that avitaminosis or deficiency of vitamin intake, deficiency of systemic calcium intake and content, and endocrine disturbances are important factors in the induction of allergic sensitivity.

Ferris Smith reports that the X-ray, assisted by the use of radiopaque oil, disclosed very distinct pathology in one or more of the nasal sinuses of 82 per cent of all the asthmatic patients who have come under his observation. He estimates that more than 60 per cent of all the asthma first appear before the age of twenty, that is, during the period of childhood. McLaurin believes that, with the exception of the specific infections of syphilis and tuberculosis and the infections resulting from foreign bodies lodged in the bronchi, "100 per cent of all cases of chronic tracheobronchitis, bronchitis, bronchiectasis, peribronchitis and asthma are directly dependent upon some type of sinus disease." In support of this statement he cites a report made by T. R. Smith of 1,510 cases admitted to a large clinic for the care of thoracic diseases,



and calls attention to the analysis that was shown. Of the 1,510 cases 166 were tuberculous, leaving 1,344 nontuberculous cases that were diagnosed as bronchitis, asthma, and bronchiectasis.

It was found that 464 of the nontuberculous cases had deviated septums, septal spurs, and hypertrophied turbinates, indicating the predisposing tendency of these nasal defects to serious pathologic conditions. The whole group of 464 had more or less nasal obstruction which sometimes amounted to total blockage.

Another group of 582 of the nontuberculous cases had constant nasal discharge, and most of them had demonstrable postnasal drainage which indicated that the posterior ethmoids may have been the main offenders.

The remaining 298 nontuberculous cases had diseased tonsils and granular pharyngitis. It was believed the granular pharyngitis was dependent upon the postnasal ethmoid drainage which was present in all these cases.

This summary accounts for the total 1,344 nontuberculous patients who had chronic nasal sinusitis and various types of chronic chest diseases. Most of this large group had more or less frequent colds which were coincidental with the acute exacerbations of the sinusitis.

Paranasal sinus infection, even in the latent type, remains a constant menace to the lungs and pulmonary adnexa as well as other parts of the body, notably the kidneys, until the infection is eradicated and the sinusitis is completely cured; and we, as physicians working in the interest of these patients, should always carefully examine the head to locate foci of infection before a final diagnosis of thoracic, kidney or many other diseases is finally decided.

Nearly all cases of nasal sinusitis are primarily and essentially surgical cases. However, it is often necessary to postpone surgical interference on account of some intercurrent complication. Some of the complications make sinusitis patients poor surgical risks. In such instances it is preferable to employ conservative and restorative measures in an effort to combat the complication and bring the patient as nearly as possible to normal resistance before instituting surgical procedure. In nearly all cases of sinusitis in infants I believe it is better to

employ conservative treatment first, and later, if found necessary, more radical measures may be instituted. But a large majority of sinusitis patients are good surgical risks and usually the results secured by timely and well-directed surgery are very gratifying.

#### BIBLIOGRAPHY

1. Hurd, L. M.: "Chronic Infections of the Nasal Accessory Sinuses." *Annals of Otolaryngology, Rhinology, and Laryngology*, December, 1930.
2. Mullin, W. V.: "The Relation of Paranasal Sinus Infection to Disease of the Lower Respiratory Tract." *J. A. M. A.*, September 4, 1926.
3. Mullin, W. V.: "A Review of Sinus-Chest Infection." *Annals of Otolaryngology, Rhinology, and Laryngology*, September, 1932.
4. Quinn, L. H., and Meyer, O. O.: "The Relation of Sinusitis and Bronchiectasis." *Arch. Otolaryngology*, August, 1929.
5. McLaurin, J. G.: "Chest Complications of Sinus Disease." *Annals of Otolaryngology, Rhinology, and Laryngology*, September, 1932.
6. Jones, Marvin F.: "Infection of the Temporal Bone with Secondary Manifestations." *Annals of Otolaryngology, Rhinology, and Laryngology*, September, 1934.
7. Marriott, McKim: "Pediatric Aspects of Otolaryngology." *Annals of Otolaryngology, Rhinology, and Laryngology*, September, 1927, and March, 1928.
8. Jeans, P. C.: "The Diagnosis and Importance of Mastoiditis and Sinusitis." *Am. J. Dis. Child.*, February, 1927.
9. Shea, J. J.: "Paranasal Sinusitis: A Clinical Consideration." *Annals of Otolaryngology, Rhinology, and Laryngology*, December, 1927.
10. Longcope, W. T.: *Trans. Assoc. Amer. Phys.*, 43: 114, 1927.
11. Dean, L. W.: "Influence of Paranasal Sinus Infection in Infants and Young Children." *Annals of Otolaryngology, Rhinology, and Laryngology*, December, 1927.
12. Smith, Ferris: "Asthma: Its Etiology and Surgical Treatment." *Annals of Otolaryngology, Rhinology and Laryngology*, December, 1929.
13. Cone, A. J.: "Presentation of a Case of Bronchiectasis in a Child with Paranasal Sinus Disease." *Annals of Otolaryngology, Rhinology, and Laryngology*, June, 1926.
14. Lierle, D. M.: "Paranasal Sinus Disease and Asthma in Young Children." *Annals of Otolaryngology, Rhinology, and Laryngology*, June, 1926.
15. Spielberg, William: "Pathology of Chronic Sinusitis in Children." *Annals of Otolaryngology, Rhinology, and Laryngology*, September, 1934.
16. Clausen, S. W.: "Parenchymatous Nephritis. II. Infection of Paranasal Sinuses as Etiology." *Am. J. Dis. Child.*, May, 1925.
17. Proetz, A. W.: "Further Data on the Displacement Method in Sinuses." *Annals of Otolaryngology, Rhinology, and Laryngology*, June, 1927.
18. Beard, H. H.: "Prophylactic Effect of Vitamins A and D Upon the Prevention of the Common Cold and Influenza." *J. Amer. Dietet. Assoc.*, Vol. X, No. 3, September, 1934.

# THE JOURNAL

OF THE

## TENNESSEE STATE MEDICAL ASSOCIATION

Devoted to the Interests of the Medical Profession of Tennessee  
Office of Publication, 510 Doctors Bldg., Nashville, Tenn.

Acceptance for mailing at special rate of postage provided for  
in Section 1103, Act of October 3, 1917,  
authorized July 15, 1932.

H. H. SHOULDERS, M.D., Editor and Secretary

JANUARY, 1935

## EDITORIAL

### DOCTORS AND THE NEW YEAR

The years of 1933 and 1934 have witnessed the launching of many projects and proposals, many of which are alleged to have the virtue of providing security for humanity. Many of these proposals have not yet reached legislative halls. It is apparent that many of them will be presented in the form of bills to legislative bodies for enactment into law.

Much propaganda work has been done by the proponents of such measures. One of the proposals which must receive our attention is a bill for health insurance, drafted and sponsored by the American Association for Social Security.

In so far as anybody knows, the American Association for Social Security was formed very recently. It has about five thousand members, consisting of economists, social workers, and "others interested in advancing social security."

The executive secretary is Mr. Abraham Epstein, with headquarters at 22 East Seventeenth Street, New York. The office staff consists of twelve people, and the field staff consists of four people.

The bill which this organization proposes to introduce into the various legislatures has been circulated quite widely, and much publicity has been broadcast in an effort to create the impression that the individual security of people can be guaranteed by legislative enactment through the simple process of taking goods and services away from some people and giving these goods and services to others through the medium of a bureaucratic mechanism financed by the taxpayers.

It is not possible to cover any of the phases of this bill in a brief editorial. It covers twenty-two typewritten pages, single spaced. A few of its provisions will be touched upon.

The bill sets up a health insurance commission composed of five members. One of these is the commissioner of health of the state. Another is the commissioner of health insurance, and three other members, all appointed by the Governor and approved by the Senate.

This commission is endowed with autocratic power. Various other groups are set up with advisory powers only. This commission in turn has the power to set up local councils in districts and counties throughout the state. It is financed as follows:

Employees of certain types pay three per cent of their weekly wages to the fund. Employers pay one and one-half per cent of their pay rolls to the fund, and the state pays over to the fund a similar amount out of the general funds of the state. In other words, six per cent of the entire pay roll of the state is turned over to, and administered by, this commission. All persons with an income of \$250 per month, or less, are compelled to come under the provision of the act. Persons with an income up to \$5,000 per year may, if they so elect, come under the provisions of the act.

It is estimated that over 90 per cent of the population of the United States is eligible to come under the provisions of this act, either by election or by compulsion.

The following benefits are provided for: First, a cash benefit in the case of disability up to one-half the weekly wage of the employee, but not to exceed \$15 per week.

The commission is charged with complete and autocratic power to hire and fire doctors, dentists, etc., to build hospitals, and to subsidize existing hospitals as it may deem necessary.

The commission has power to contract with doctors for services. It makes the terms and conditions under which the services are rendered. There is a provision in the bill to the effect that all doctors desiring to render service under the act will register



on a panel; that is, provided they comply with the regulations and agree to the conditions prescribed by the council. The council still would have the power to dismiss whenever and wherever it might see fit to do so.

There is no provision in the bill to give service to those who are already indigent. All of the unemployed people without income sufficient to enable them to pay the required sum to the fund are still to be public charges. The bill makes no provision for their security. The bill actually provides for the *security* of those who already possess security. Take, for example, a person with an income of \$250 per month. The amount he or she would pay to the fund is \$7.50 per month. The employer and the state would contribute a like amount, making \$15 per month, or \$180 per year—a rather neat little sum. There are private insurance companies who issue policies providing for benefits far superior to the benefits provided for in this act at a cost far less than this amount.

It is high time that wage earners themselves and taxpayers get wise to these schemes. The wage earner pays his money to the fund. He gives up his liberty of choosing the doctor that is to come into his home. He gives up all of his liberties pertaining to the services to be rendered, and accepts, in return for the money paid and the liberties surrendered, a small cash benefit under certain conditions, and whatever medical or hospital services a bureaucratic group would see fit to administer.

This scheme, of course, is borrowed from certain European countries and modified slightly. It is common knowledge that in the countries where these schemes have been adopted *liberty is gone*. It is also easy to show that the people have not gotten SECURITY in return. Their death rates have not been reduced and their morbidity rates have been increased.

These schemes create political pirates in office and endow them with tremendous powers, and create small pirates on the outside who are almost helpless.

Who would dare make a forecast of the political crimes that are to be committed in the name of SECURITY? Liberty and

justice are not mentioned by these propagandists.

It is easy to figure that a security bought at such a price might turn out to be of less value than much of the paper we bought in 1928 and 1929 which bore the name of "securities."

There is something fascinating about the word "security." The word actually implies a deep significance. It is tremendously abused.

It is obvious that the medical profession must be informed and alert in a degree and to an extent it has never been before in the year 1935.

---

#### FACING REALITIES

The time is rapidly approaching when actualities must be faced. There are many realities we do not wish to face and deal with. It requires courage and judgment and a profound appreciation of right and wrong.

It is said that the dope fiend is induced to become a fiend largely because of a desire to get away from realities.

Some evenings ago we saw a short movie entitled, "The Spectacle Maker." A suggestion was made to an old spectacle maker that if he wanted to be famous he should make a lens through which only beauty could be seen. He made such a lens and did become famous. Through the lens the king looked at the queen, and she was beautiful. The queen looked at the king, and he was made beautiful. A philosopher suggested to the spectacle maker that he should make a lens through which only truth could be seen—that only truth is beautiful. Again the spectacle maker achieved the purpose and made such a lens. When the queen looked through this lens and saw the king, there was consternation. When the king saw the queen, there was more consternation. The old spectacle maker was arrested and was to be prosecuted for inventing a contrivance that would cause so much trouble. The philosopher again appeared in defense of the old spectacle maker. The little innocent princess looked through the lens and saw *beauty* through the *lens* of *truth*. The king looked at the old spectacle

maker through the lens of truth and changed his mind. In brief, the spectacle maker was acquitted of the charge of sorcery. The philosopher disappeared. He was asked to come back and stay by the spectacle maker. His reply was to the effect that humanity is not yet ready for the truth.

It is repeated that our civilization today is quite complicated, largely by inventions of various sorts pertaining to communication, transportation, and production.

It is obvious that there is a rapidly increasing proportion of our population incapable of adapting themselves to such a civilization. They are not born with the inherent qualities that will enable any process of education to fit them for citizenship in such a civilization. Many of them are prolific in reproduction. It is obvious that the only constructive remedy for the situation is one directed at the diminution of the reproduction of mental and physical unfits. Such a move is prompted by the highest sense of charity toward the unfit. It is prompted by a sense of justice to those who are fit. The highest form of justice is that done the unborn.

The person who today is classed ordinarily as a sociologist is not in reality a sociologist at all. In most instances he is a person who draws a salary for some sort of work that is social in character. Such people rarely make a constructive suggestion. The only suggestion that comes from them is that their salaries be increased and that the money appropriated and donated for the care of the unfortunates be multiplied over and over again.

The number of people in America today who are of necessity wards of the state is appalling.

The cost of the crimes of some people, plus the cost of the care of others, draws heavily on the resources of the people. It sometimes appears that the more public funds that are spent in administering care, food, and attentions of various sorts the greater the demand for more expenditures. The bold truth is *it must stop somewhere*.

Several states have taken steps aimed at

curtailing or stopping the reproduction of people who are antisocial or at least incapable. One of the early ones was the state of Virginia. The constitutionality of the law was challenged. Its constitutionality was upheld, however, by the Supreme Court of the United States, in an opinion handed down by Justice Holmes some years ago.

Broadly speaking, it is a gross injustice to communize and tax to extinction those who are fit to live in a democracy, in order to take care of and preserve and perpetuate the unfit. This has no reference to the capable people temporarily out of employment by reason of the depression.

It is a striking fact that the so-called sociologists have offered nothing more than a scheme by which the thrifty and productive are to be taxed to provide homes, education, medical care, and guidance for those who have demonstrated an unfitness to take care of themselves.

## DEATHS

Dr. Paul H. Faucett, Columbia; Barnes Medical College, St. Louis, 1908; aged 49; died December 8, following a short illness from pneumonia.

## WOMAN'S AUXILIARY

President-----Mrs. Willis Campbell  
Memphis

President-Elect-----Mrs. R. G. Reaves  
Knoxville

Press and Publicity----Mrs. W. W. Wilkerson, Jr.  
Nashville

MRS. OLIVER HILL, PRESIDENT-ELECT OF THE  
WOMAN'S AUXILIARY TO THE SOUTHERN  
MEDICAL ASSOCIATION

Again our Tennessee auxiliary is honored. When Mrs. Hill, a former president of the auxiliary in Tennessee, was made president-elect of the Woman's Auxiliary to the Southern Medical Association, she brought great honor to herself and to the Knox County and Tennessee auxiliaries. We feel that Tennessee, through Mrs. Hill and Mrs. R. N. Herbert, the president-elect of



the National Auxiliary, should be the most outstanding state auxiliary during 1935-36. We are deeply aware of the responsibility which these honors put upon us as an auxiliary, and trust that the limelight which will be turned upon us will reveal an auxiliary which is a model of enterprise and enthusiasm.

#### REPORTS OF LOCAL AUXILIARIES

Knox County—Mrs. H. E. Christenberry, President.

The auxiliary met for election of officers on December 5 at the Holston Country Club, with Mrs. Christenberry presiding. At this important meeting there were twenty-eight members present, as well as visiting doctors' wives from Blount, Monroe, McMinn, and Sevier Counties. The following officers were elected for the coming year:

President, Mrs. H. E. Christenberry.

Vice President, Mrs. H. R. Miller.

Recording Secretary, Mrs. Charles Clayton.

Corresponding Secretary, Mrs. Jesse Hill.

Treasurer, Mrs. Dewey Peters.

Historian, Mrs. John Moore.

Parliamentarian, Mrs. Henry Clay Long.

It was reported at the meeting that the Hygeia chairman had placed twenty copies of Hygeia magazine in some of the city and county schools. The auxiliary voted to continue its project recently started at General Hospital whereby charity patients are given instruction in prenatal care and in the care of babies. Reports indicated that an average of twenty-five mothers had attended the lectures.

A musical program was given by Mrs. G. W. Stone, accompanied by Mrs. Dewey Peters, and some readings were given by Miss Emily Mahan. Mrs. Oliver Hill gave a highly interesting talk on her recent trip to San Antonio and Mexico.

Following the meeting, luncheon was enjoyed, the tables being elaborately decorated in the holiday motif.

An invitation was extended to the members of the auxiliary and their husbands to be the guests of Dr. and Mrs. Christen-

berry at an evening party at their home on December 20.

Davidson County—Mrs. B. F. Byrd, President.

The auxiliary met on the first Friday in December in the parlors of the Y.W.C.A., with Mrs. Byrd presiding. During the business meeting, books were solicited for the library of the General Hospital. Mrs. Theodore Morford, chairman of legislation, and Mrs. H. B. Brackin, chairman of philanthropy, were in charge of the program. Three highly entertaining readings, "The Time to Love," "Women," and "Men," were given by Mrs. Duke. Dr. N. S. Shofner, the speaker for the day, read an excellent paper on "Medical Ethics."

#### PERSONAL ITEMS

Mrs. B. F. Byrd, who has been indisposed during the holidays, is recuperating nicely.

Born to Dr. and Mrs. A. N. Hollabaugh, Jr., of Nashville, a boy, on January 3.

### NEWS NOTES AND COMMENTS

A sectional meeting of the American College of Surgeons is scheduled to take place in Birmingham, Alabama, March 7, 8. The states represented are Alabama, Georgia, Florida, Mississippi, Louisiana, and Tennessee.

As a rule, these programs are well prepared. The attendance is not so large as to interfere with getting the full benefits from the programs.

Dr. W. L. Williamson, Memphis, Secretary of the State Executive Committee of the College for Tennessee, is especially anxious to have a good representation from Tennessee at this conference. More complete information as to the programs will appear in the next issue of the JOURNAL.

The 1935 annual Clinical Congress of the American College of Surgeons will be held in San Francisco, October 28 to November 1.

# LIST OF OFFICERS OF THE TENNESSEE STATE MEDICAL ASSOCIATION

President—Dr. J. O. Manier, Nashville.  
 Vice President for East Tennessee—Dr. W. B. Campbell, Cleveland.  
 Vice President for Middle Tennessee—Dr. J. K. Blackburn, Pulaski.  
 Vice President for West Tennessee—Dr. G. H. Berryhill, Jackson.  
 Secretary-Editor—Dr. H. H. Shoulders.  
 Assistant Secretary-Editor—Dr. W. M. Hardy.

## TRUSTEES

Chairman and Treasurer—Dr. C. M. Hamilton, Doctors Building, Nashville.  
 Dr. Ralph Monger, Medical Arts Building, Knoxville.  
 Dr. W. L. Williamson, 915 Madison Avenue, Memphis.  
 Dr. H. B. Everett, 2541 Broad Street, Memphis.  
 Dr. E. R. Zemp, Walnut Street, Knoxville.

## COUNCILORS

First District—Dr. L. E. Dyer, Greeneville.  
 Second District—Dr. S. R. Miller, Knoxville.

Third District—Dr. J. H. Revington, Chattanooga.  
 Fourth District—Dr. J. T. Moore, Algood.  
 Fifth District—Dr. John W. Sutton, Petersburg.  
 Sixth District—Dr. L. W. Edwards, Nashville.  
 Seventh District—Dr. C. D. Walton, Mt. Pleasant.  
 Eighth District—Dr. J. R. Thompson, Jackson.  
 Ninth District—Dr. E. H. Baird, Dyersburg.  
 Tenth District—Dr. W. B. Burns, Memphis.

Speaker of the House of Delegates—Dr. E. R. Zemp, Knoxville.

Delegates to the American Medical Association—

Dr. E. G. Wood, Knoxville; East Tennessee.  
 Dr. H. H. Shoulders, Nashville; Middle Tennessee.  
 Dr. H. B. Everett, Memphis; West Tennessee.

Alternates—

Dr. E. T. Newell, Chattanooga; East Tennessee.  
 Dr. M. M. Cullom, Nashville; Middle Tennessee.  
 Dr. E. C. Ellett, Memphis; West Tennessee.

## OFFICERS OF COUNTY MEDICAL SOCIETIES FOR THE YEAR 1935

All societies have been urgently requested to send in the names of the newly elected officers for the year 1935 in order that we may have a complete roster of society officers in the Journal for the benefit of the membership at large.

| COUNTY                   | PRESIDENT                     | VICE PRESIDENT                        | SECRETARY-TREASURER            |
|--------------------------|-------------------------------|---------------------------------------|--------------------------------|
| Anderson                 | Thomas Jennings, Clinton      | Edward Dickson, Coal Creek            | J. S. Hall, Clinton            |
| Bedford                  |                               |                                       | W. H. Avery, Shelbyville       |
| Bradley                  | Vance H. Bell, Cleveland      | D. N. Arnold, Cleveland               | Wm. A. Garrott, Cleveland      |
| Carroll                  |                               |                                       | J. H. Williams, McKenzie       |
| Carter                   | E. T. Pearson, Elizabethton   | J. B. Shoun, Elizabethton             | E. L. Caudell, Elizabethton    |
| Cocke                    |                               |                                       | J. E. Hampton, Newport         |
| Davidson                 | W. G. Kennon, Nashville       | H. S. Shoulders, Nashville            | J. P. Gilbert, Nashville       |
| Dyer, Lake, and Crockett | E. H. Baird, Dyersburg        | P. E. Miller, Tigrett (Dyer)          | C. L. Denton, Dyersburg        |
|                          |                               | R. C. Newkirk, Tiptonville (Lake)     |                                |
|                          |                               | J. O. McKinney, Friendship (Crockett) |                                |
| Franklin                 | W. F. Smith, Decherd          | A. P. Smith, Winchester               | John P. Grisard, Winchester    |
| Giles                    | Joe B. Wright, Lynnville      | R. E. Warren, Pulaski                 | T. F. Booth, Pulaski           |
| Greene                   | L. E. Dyer, Greeneville       | M. A. Blanton, Mosheim                | C. P. Fox, Jr., Greeneville    |
| Haywood                  | W. D. Poston, Brownsville     | A. H. Sorrelle, Brownsville           | Roy M. Lanier, Brownsville     |
| Jackson                  | J. D. Quarles, Whiteleyville  | R. C. Gaw, Gainesboro                 | F. B. Clark, Gainesboro        |
| Knox                     | Eugene Abercrombie, Knoxville | W. F. Christenberry, Knoxville        | Jesse C. Hill, Knoxville       |
| McMinn                   | R. W. Epperson, Athens        | S. B. McClary, Sr., Etowah            | L. A. Brendle, Englewood       |
| Monroe                   | T. M. Roberts, Sweetwater     |                                       | W. J. Cameron, Sweetwater      |
| Montgomery               |                               |                                       | Paul E. Wilson, Clarksville    |
| Polk                     | H. P. Hyde, Copperhill        | W. Y. Gilliam, Copperhill             | F. O. Geisler, Isabella        |
| Putnam                   | Z. L. Shipley, Cookeville     | J. Fred Terry, Cookeville             | Thurman Shipley, Cookeville    |
| Roane                    | L. A. Killefer, Harriman      | R. F. Register, Rockwood              | W. W. Hill, Harriman           |
| Rutherford               | J. D. Hall, Readyville        |                                       | J. A. Scott, Murfreesboro      |
| Sevier                   | O. H. Yarberry, Sevierville   |                                       | C. P. Wilson, Sevierville      |
| Smith                    | R. E. Key, Monroville         | Rhea E. Garrett, Dixon Springs        | Thayer S. Wilson, Gordonsville |
| Sullivan and Johnson     | W. R. Rogers, Bristol, Va.    | L. C. Cox, Kingsport (Sullivan)       | Arthur Hooks, Bristol, Tenn.   |
|                          |                               | J. C. Hutchenson, Crandall (Johnson)  |                                |
| Warren                   |                               |                                       | John S. Harris, McMinnville    |
| Washington               |                               |                                       | Carroll H. Long, Johnson City  |
| Weakley                  | R. W. Brandon, Martin         | H. G. Edmonson, Martin                | P. W. Wilson, Dresden          |
| White                    | S. E. Gaines, Sparta          | Vernon Hutton, Ravenscroft            | A. F. Richards, Sparta         |
| Williamson               | T. C. Rice, Franklin          | R. H. Hutchison, Franklin             | K. S. Howlett, Sr., Franklin   |
| Wilson                   | J. L. Ames, Lebanon           | C. C. Young, Alexandria               | J. R. Bone, Lebanon            |



## STANDING COMMITTEES

## COMMITTEE ON SCIENTIFIC WORK

H. H. Shoulders, Chairman, Nashville  
 A. F. Cooper, Memphis  
 W. J. Sheridan, Chattanooga  
 Jesse C. Hill, Knoxville

COMMITTEE ON PUBLIC POLICY AND  
LEGISLATION

L. W. Edwards, Chairman, Nashville  
 T. R. Ray, Shelbyville  
 Robert Sullivan, Nashville  
 Battle Malone, Memphis  
 Tom R. Barry, Knoxville  
 J. O. Manier, ex officio, Nashville  
 H. H. Shoulders, ex officio, Nashville

## COMMITTEE ON MEDICAL EDUCATION

O. S. Warr, Chairman, Memphis  
 W. H. Witt, Nashville  
 Franklin Bogart, Chattanooga  
 Oliver Hill, Knoxville

ADVISORY COMMITTEE TO THE WOMAN'S  
AUXILIARY

B. F. Byrd, Chairman, Nashville  
 Percy Wood, Memphis  
 Eugene Abercrombie, Knoxville

## LIAISON COMMITTEE

Hiram A. Laws, Chattanooga (five years)  
 Tom Mitchell, Memphis (four years)  
 J. L. Raulston, Knoxville (three years)  
 W. C. Dixon, Chairman, Nashville (two years)  
 W. P. Wood, Knoxville (one year)

STATE TUBERCULOSIS HOSPITAL  
COMMISSION

W. S. Rude, Chairman, Ridgetop  
 O. N. Bryan, Nashville  
 H. R. Townsend, Oakville  
 James L. Hamilton, Chattanooga

## HOSPITAL COMMITTEE

Lee Gibson, Chairman, Johnson City  
 D. R. Pickens, Nashville  
 E. H. Baird, Dyersburg  
 E. Dunbar Newell, Chattanooga  
 Kyle C. Copenhaver, Knoxville  
 W. K. Edwards, Centerville  
 J. A. McIntosh, Memphis

## CANCER COMMITTEE

A. G. Kern, Chairman, Knoxville  
 A. M. Patterson, Chattanooga  
 J. A. Crisler, Jr., Memphis  
 James W. McClaran, Jackson  
 Howard King, Nashville  
 E. T. West, Johnson City  
 J. A. McCulloch, Maryville

## MEDICAL SOCIETIES

*Davidson County:*

December 11 — "Injuries Involving the Knee Joint," by Dr. J. J. Ashby. Discussion opened by Dr. R. R. Brown.

"Case Report: Traumatic Duodenal Ulcer in Ten-year-old Boy," by Dr. Jack Wither-  
 spoon.

December 18—"Certain Effects of X-rays on Bone Growth and the Healing of Fractures," by Dr. Eugene M. Regen and Dr. Walter E. Wilkins. Discussion opened by Dr. C. M. Hamilton.

"Case Report: An Unusual Tumor of the Liver," by Dr. Herman Spitz.

January 8—Annual dinner and election of officers.

*Dyer, Lake, and Crockett Counties:*

On December 8, members of the society attended a banquet, with the Baird-Brewer General Hospital, Dyersburg, as host. The following papers were read:

"Sepsis," by Dr. J. B. McElroy, Memphis.

"Becoming Allergy Conscious," by Dr. W. C. Chaney, Memphis.

Approximately forty-five members were present.

*Giles County:*

The Giles County Medical Society has had a very good year in 1934, both in attendance and in interest manifested at the meetings. We had our annual banquet at the Hotel Richland on December 27, 1934, and had fourteen members present. At this banquet officers for the coming year were elected.

T. F. BOOTH, *Secretary*.

*White County:*

December 19—We had a big meeting this month. Twelve members were present. A splendid paper was read, and eleven queries in the query box. Our average attendance this year was 856. Nine papers were read. Our society is thriving well and harmoniously. We are expecting a good year's work this year.

A. F. RICHARDS, *Secretary*.

## ABSTRACTS OF CURRENT LITERATURE

### ANESTHESIA

By HUGH BARR, M.D.  
Medical Arts Building, Nashville

Leukocyte Count of the Blood Following Obstetric Analgesia by Pentobarbital Sodium. Robt. S. Hardwick and Lawrence M. Randall. *Journal A. M. A.*, May 12, 1934.

The authors studied the effects of pentobarbital or nembutal on the leukocyte count in fifty-nine obstetrics cases to ascertain if there was any tendency towards production of granulocytopenia. Blood counts were made five and ten hours after each delivery and daily thereafter to the ninth day.

The primipara received from one and one-half grains to nine grains, and the multipara, up to twelve grains. The white count varied between 11,000 and 12,500 and increased during the first day. The authors concluded that pentobarbital had no deleterious effect and caused no leukopenia with the amount administered.

### OPHTHALMOLOGY

By ROBERT J. WARNER, M.D.  
Doctors Building, Nashville

Relation Between Dacryocystitis and Sinus Disease. C. Codero. *Archives of Ophthalmology*, December, 1934.

Seventy-eight cases of dacryocystitis were studied according to a definite plan of investigation, from which the following conclusions are drawn regarding etiology:

Frequent coexistence of inflammatory processes involving the lacrimal sac and paranasal sinuses is undeniable. Such was the case in 79 per cent of the patients; in 46 per cent it was certain, while in 33 per cent there was a strong probability. In general, the sinuses were affected by a simple inflammatory process, more or less accentuated. Only rarely was free pus found in the nose, a sign of inflammation in a strict sense. The sinuses most often affected were the ethmoid, either separately (22 per cent) or together with the other periorbital cavities (51 per cent). Where there was an associated polysinusitis, combinations of ethmoid-maxillary and ethmoid-sphenoid infection occurred. These were observed in 21 per cent of the cases of associated sinusitis.

Twenty-five cases carefully followed up seemed to show that acute or chronic dacryocystitis is quite often followed or accompanied by sinus disease. The author formulates the latter proposition merely as a hypothesis. In fact, in 80 per cent of these, after extirpation of the sac, the sinuses became markedly or completely clear in roentgenograms.

In acute or phlegmonous dacryocystitis sinus involvement is more frequent than in the chronic forms.

### PEDIATRICS

By JOHN M. LEE, M.D.  
Doctors Building, Nashville

Mumps Meningoencephalitis. John C. Montgomery, M.D., Detroit. *Amer. Jour. Dis. Children*, December, 1934.

Six cases of this condition were observed and are reported. The ages were from 6½ to 10½ years; all males but one. The meningeal symptoms appeared in from one to seven days after parotid swelling in all except one, and in this case they appeared coincident with the swelling. In these patients there were fever, vomiting, headache, rigidity of the neck, delirium, positive Kernig and exaggerated deep reflexes, and one patient had convulsions.

Spinal drainage gave immediate improvement. The spinal fluid came out under increased pressure and showed increase of cells, lymphocytes predominating, also increased globulin. All cases recovered.

There are numerous theories as to the etiology cited. One is that the condition results from passive congestion from pressure of jugular vein by swollen parotid; another, due to emboli from endocarditis; others think it to be a true meningitis produced by the virus of mumps. The author feels that the salivary glands, the meninges, encephalon, pancreas and mature gonads are the organs of predilection as the most susceptible points of localization of an infection that is probably primarily a septicemia.

Fatalities from this condition have been rare, but at autopsy there have been found edema in the surface of the brain, a semifibrinous exudate in the sulci, and hyperemia of the pons and spinal cord. Also were found accumulation of slightly turbid fluid in the cisterna magna, congestion of the pia-arachnoid and a grayish-yellow perivascular exudate following the course of blood vessels, and ventricles distended with clear fluid.

### SURGERY—GENERAL AND ABDOMINAL

By ROBIN F. MASON, M.D., F.A.C.S.  
735 Medical Arts Building, Memphis

Cancer of the Colon. (Notes on Its Surgical Treatment.) Fred F. Rankin, M.D., F.A.C.S., Lexington, Ky. *S.G.&O.*, September, 1934, Vol. LIX, No. 3.

From a treatment point of view, cancer of the large bowel is a chronic disease, with few exceptions. This is fortunate because it permits of better preparation.

Obstruction is usually present at some time during the course of the disease.



Burgess says that, in a large series of obstruction cases, one-third was in the large bowel. He also found that where the lesion was localized in the colon 90 per cent of them were cancerous and usually in the left colon. The reason lies in the difference in fecal content and construction of the left bowel and also in the variety of pathological growth. The scirrhus growth of the left colon has a tendency to encircle the lumen, whereas in the right colon the growth is usually flat and ulcerative and the fecal content fluid.

Usually the growth has been in existence for nearly a year, and the patient comes for advice because of dehydration, intoxication, etc.

Preliminary rehabilitatory measures, of course, have to be taken. Consequently, the treatment divides itself naturally into preparatory, operative, and convalescent periods.

The first is by no means the least important. Hydration, decompression, vaccination, and rehabilitation constitute the preparation.

In chronically obstructed cases, mild purgation and bowel irrigation from three to six days will do the trick. No such treatment, of course, is attempted in acute cases. In them, surgery alone is indicated. Normal saline is the usual fluid. While decompression is going on, the patient is being "hydrated."

Of late, the writer has routinely given blood transfusions preparatively. Also the use of intraperitoneal vaccination with streptococci and colon bacilli vaccine has been routine since 1927.

He has found this procedure to measurably lower the surgical mortality.

He finds that about one out of two cases is operable. Occasionally the proportion is higher. Operability is, of course, a very flexible term.

He subscribes to the graded operation in the extirpation of colonic growths. The choice of operation differs where the right or left colon is involved. In the right colon, he prefers a stage operation, doing an ileocolostomy in first stage, and later doing an excision of the remaining right bowel. He much prefers the end-to-side type of anastomosis done aseptically over clamps of his own invention. The operation is simple and safe. He has done 100 consecutive operations of this type without leakage, hemorrhage or infection.

He considers the aseptic type of anastomosis, just as he does the vaccination, as one step in the successful attack upon cancer of the right colon. The second stage is carried out two to six weeks later.

When the cancer is situated beyond the middle of the transverse colon, he prefers the obstructive type of resection. In this type of growth, decompression is also very desirable before operation. The growth is exteriorized, blood vessels ligated

in the mesentery, gland-bearing tissue removed, the three-bladed clamp applied, and growth removed. The obstruction is maintained for 48 to 60 hours, and then the proximal clamp is removed. The distal clamp is left on until nature removes it.

Occasionally he employs the Mikulicz operation in thin, elderly individuals with a mobile mass. Usually it can be done best in this class under local anesthesia. Where the bowel is not sufficiently decompressed, it is often desirable to do either a cecostomy or colostomy as a preliminary drainage measure. A large Pezzer catheter introduced into the cecum after Hendon's method will usually do the work within a number of days.

These graded procedures usually may be undertaken with a hospital mortality of from 5 to 10 per cent.

## UROLOGY

By TOM R. BARRY, M.D., F.A.C.S.  
Medical Building, Knoxville

Upper Urinary Tract During Normal Pregnancy. John S. Lewis, Jr., and Edgar C. Baker. *Am. J. Surgery*, December, 1934.

The introduction of new intravenous solutions to render the urinary tract opaque lends itself readily to investigation of these organs without danger to the patient. A moderate degree of hydro-ureter is at present considered an almost constant finding in pregnancy. Angulation of the right ureter at the distal end of the juxtavesical portion, due to dextrorotation of the pregnant uterus, Hofbauer gave as the cause of right-sided preponderance. The left ureter was thought by Carson to be protected by the colon.

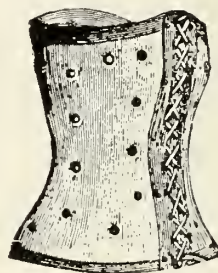
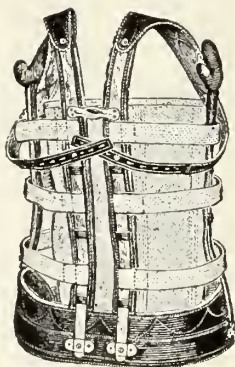
The authors are convinced that dilatation of the ureters is chiefly mechanical, being produced by the presence of the uterus on the ureters at the pelvic brim.

A series of fifty-two pregnant women without urinary tract symptoms was studied, both prima and multiparous patients being included. The period of gestation ranged from three months to term. Dilatations were graded one to four, the latter being the calibre of the small gut. The greatest dilatations were found in the sixth, seventh, and eighth months of pregnancy. They found neither the position of the fetus or number of pregnancies had any bearing on the dilatation. They believe that the left ureter is protected by the sigmoid, thus the reason for the right-sided preponderance. They also conclude that uterine fibromas and ovarian cysts will produce the same phenomenon.

**AS** YOUR PROFESSIONAL reputation is affected by every examination you make and every pair of lenses you prescribe, protect yourself by giving your patients only the best lenses that will faithfully reproduce the findings of your examinations. Milwide corrected curve lenses will assure you of accurate Rx's. They are built on scientific base curves, corrected for marginal errors, and pitched polished to finish free from aberration, pits and scratches.

## JOHN S. MILAM OPTICAL COMPANY

NASHVILLE, TENNESSEE



### SPECIAL ATTENTION

—given to the selection and fitting for your patients of Orthopedic Appliances.

Our long experience in the manufacture of braces enables us to help you solve your problems in working out mechanical aid for your patients.

We appreciate your coöperation, and know you will like our service.

153 FOURTH AVENUE, NORTH  
NASHVILLE, TENN.

**THEO. TAFEL CO.**



# THE JOURNAL

OF THE

## TENNESSEE STATE MEDICAL ASSOCIATION

DEVOTED TO THE INTERESTS OF THE MEDICAL PROFESSION OF TENNESSEE

ISSUED MONTHLY, Under Direction of the Trustees

H. H. SHOULDERS, M.D., Secretary and Editor

W. M. HARDY, M.D., Asst. Secretary-Editor

OFFICE OF PUBLICATION, 510 DOCTORS BUILDING, NASHVILLE, TENNESSEE

Volume XXVIII

FEBRUARY, 1935

No. 2

### TUMORS OF THE SYMPATHETIC NERVOUS SYSTEM\*

DEAN LEWIS, M.D., Baltimore, Md., President-Elect, 1933, American Medical Association

**T**UMORS of the sympathetic nervous system are protean in their clinical manifestations and differ considerably in their histological appearance. Arising from the same stem cell, depending upon the differentiation, these tumors may be exceedingly malignant or benign. Between the two extremes are tumors which, although malignant histologically, pursue a relatively benign course. The tumors develop from neuroblasts (sympathogonia) which wander out from the neural crest to form the sympathetic nervous system. The tumors, depending upon the amount of differentiation, are called neuroblastomas, paragangliomas, and ganglioneuromas.

*Neuroblastomas*—In 1901, Pepper published a paper entitled "Congenital Sarcoma of the Liver," in which he said that "a careful review of the literature upon the subject of primary sarcoma of the suprarenal and of the same in the liver was intensely interesting, because I have found five cases of such striking similarity to the one that I have just reported that I have thought it important to abstract them quite fully to show that we have here a special type of congenital malignant disease with its own peculiar symptoms and pathological findings."

In 1907, Hutchinson, after studying ten cases of so-called sarcoma of the suprarenal gland in children, associated with metastases to the skull, described the following clinical syndrome:

"In the majority of cases the first thing noted was a swelling about the bones of the skull, which, in several of them, was ascribed to a fall or injury. Following or preceding this, proptosis of one or both eyes was observed. In two-thirds of the cases, discoloration of the eyelids on one or both sides is reported, and in a few instances this was the first point to attract attention. Anemia is a striking feature in all the cases, the blood changes being those of a profound secondary anemia. Leukocytosis has not been recorded in any case. An abdominal tumor in one or the other loin was felt in only five cases. The progress of the disease in every instance has been rapid, and the younger the patient the more rapid it is. Indications of increased cranial pressure, such as torpor, intense optic neuritis, and blindness may develop. The post-mortem features are also very constant; in all, there was found a sarcoma of the suprarenal, usually consisting of small round cells situated on the left side in six and on the right side in four of these cases. The most extensive metastases were found in the bones of the vault and base of the skull, producing swellings on the head and protrusion of the eyes observed during life. Metastases are also met with in the ribs, sternum, and vertebrae, but not apparently (except in Case I) in the long bones, though these may not always have been carefully examined."

In both of the types described metastases may form in the bones and the liver before the primary growth is suspected or dem-

\*Read before the Tennessee State Medical Association, Nashville, April 11, 12, 13, 1933.

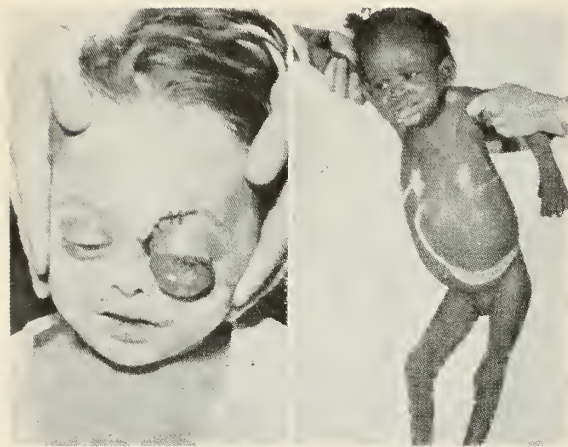


Fig. 1—This child presents the typical Hutchinson syndrome. The exophthalmos and enlargement of the cervical lymph nodes are especially marked on the left side.

Fig. 2—This child presented the Pepper syndrome. The tumor mass could be definitely outlined on palpation, but it could not be separated by palpation from the liver and spleen. The pyelogram showed that the kidney was displaced and rotated by the tumor mass. The patient died six days after an attempt at removal of the tumor.

onstrated. The differences in the two syndromes described have been explained in the following ways by Frew. In the Hutchinson syndrome the tumor was in the left adrenal and formed metastases by way of the blood stream, while in Pepper's syndrome the tumor developed in the right adrenal and metastasized to the liver by way of the lymphatics. Study of many cases has not confirmed the ideas formulated by Frew.

The clinical course in these cases is usually rapid and progressively downward. In the cases which Geschickter and I have recently studied, the average duration of symptoms before the patient was admitted to the hospital was six months. One-half of the patients had had symptoms for one month or less. In two of the cases the tumor was present at birth. Death followed within a month when an operation was attempted. Within a relatively large number of cases occurring in children the clinical course is run within two months.

The clinical course, as said in the beginning, is protean in character. Frew has described a case in which the symptoms were those of acute rheumatic fever. In two of the cases reported by Geschickter

and myself, the disease at the onset resembled acute rheumatic fever, the temperature being high and many joints involved. In some instances a marked anemia with a low platelet count has been noted.

In five cases a laparotomy has been performed. Fever, a mass, and rigidity, and tenderness of the muscles over the mass have made the examining physician suspect appendicitis. In some instances the differential diagnosis is made with so much difficulty that an exploratory incision seems advisable.

The changes in the bones, when involved, are quite typical. Multiple small areas of rarefaction predominate in the picture. The humerus and femur are the long bones most frequently affected. In the bones affected many small discrete areas of bone destruction are found, and occasionally a longitudinal zone of rarefaction. A periosteal reaction, in which a delicate layer of bone is laid down parallel to the shaft of the long bones, and sclerosis of the marrow cavity are more typical of leukemia and lymphosarcoma. Such changes are rare in neuroblastoma.

These tumors, which may be solid or cystic, are composed of small cells with hyperchromatic nuclei and little cytoplasm. They are grouped together in a manner which suggests the clumping of staphylococci in culture medium. Rosettes were found in a little more than one-third of our



Fig. 3—Malignant paraganglioma of the suprarenal gland occurring in a woman, age 34, which metastasized to the retroperitoneal lymph nodes. In the photograph the tumor is in the suprarenal gland and the upper pole of the kidney, the cortex of which is invaded. With the exception of this portion the growth is encapsulated.



cases. A number of different terms have been given these cells (lymphocytoid cells, neuroblasts, neurocytes, sympathicoblasts, and sympathogonia). Among the small cells are larger round cells with vesicular nuclei and carrot-shaped or pear-shaped cells resembling young spongioblasts. These elements are more or less constant and have their origin in the undifferentiated parent cells from which the sympathetic nervous system develops. Of the forty neuroblastomas which have been studied by Geschickter and myself, thirty-three occurred in the medulla of the suprarenal gland, or in the sympathetic ganglions adjacent to it.

As has been stated, the prognosis is bad, for the clinical course is progressively downward and is rapid.

*Paragangliomas* — Paragangliomas are the most common tumors of the sympathetic nervous system and present many clinical variations. Tumors of the carotid body are most representative of this group of tumors. These tumors develop most frequently in the carotid body, the medulla of the suprarenal gland, in the submucosa of the small intestine and stomach, and in the



Fig. 4—Photomicrograph of a tumor of the carotid body occurring in a man, age 52. He had a pulsating tumor on the left side of the neck for five years. The alveolar structure of the tumor is well demonstrated in the picture. The predominating cell, the character of the stroma, and the small groups of neuroblasts indicate the nature of the tumor.



Fig. 5—Cross section of a typical argentaffin tumor of the appendix (the so-called carcinoid). The lumen of the appendix is closed by the growth, but the wall of the appendix does not seem to be invaded (paraganglioma of the appendix).

ganglions of the sympathetic nerves. They are usually solitary and benign, but may be multiple and malignant. The histologic picture may be so bizarre and variable that it may be difficult to distinguish some of the malignant paragangliomas from highly malignant carcinomas and sarcomas containing numerous giant cells.

The carotid body tumor has a rather characteristic appearance and location, occurring as it usually does at the bifurcation of the common carotid artery. These tumors usually grow slowly, are oval and have lateral, but not longitudinal, mobility. One of the most interesting features of such tumors is that they may have an expansile pulsation—a thrill and bruit not unlike an aneurism of the carotid artery. These tumors are not confined to the carotid body, for tumors of like histology have been found in the parotid and thyroid glands.

Recently a colored patient came to the hospital. He gave the following history: He was 45 years old. About five years be-

fore admission to the hospital he noticed a small lump near the angle of the jaw. This had grown steadily from the size of a walnut to that of a man's fist. No pain or tenderness had been noted. When the patient was examined a large oval mass about 10 cm. in length was found. This extended from the angle of the jaw on the right side to the clavicle. The mass was lobulated and firm. The skin was not adherent and could be moved easily over the mass.

A decided thrill could be felt on palpation, and a loud bruit on auscultation. An expansile pulsation like that of an aneurism could be made out. This growth had been progressive for five years. There were, however, no changes in the skin, which, I believe, might reasonably have been expected, if the lesion under consideration had been an aneurism.

Paragangliomas of the suprarenal glands form an interesting group of tumors because of the diverse and, at times, bizarre symptoms which may be associated with them. They usually occur in adults. Hypertension, hypotension, and vasomotor instability are not infrequently noted. One of the patients with a paraganglioma of the suprarenal presented Addison's syndrome—vasomotor instability and fainting attacks.

Urinary symptoms may be caused by these tumors, and deformity of the renal pelvis may be shown by the pyelogram. If the intestinal wall is secondarily involved, intestinal symptoms may be noted. Glycosuria may result from hypersuprarenalism due to excessive secretion by the tumor. In some instances in which the suprarenal cortex has been destroyed by the tumor the symptoms of Addison's disease and melanoderma have been noted.

Paragangliomas of the adrenal rarely reach a large size. The larger tumors are more often cystic than the small ones, and, when cystic, the contents are usually hemorrhagic. The smaller tumors are, as a rule, surrounded by a rim of compressed adrenal cortex.

Histologically an alveolar arrangement of the cells is found, but the cell grouping is more regular than that of tumors of the carotid body. In paragangliomas of the adrenal there is a tendency to syncytial for-



Fig. 6—Gross specimen of the paraganglioma of the cecum and ascending colon. The lymph nodes draining this section of the bowel were involved. Some along the superior mesenteric artery could not be removed. This patient has remained well over three years following resection of the bowel.

mation. In the malignant forms giant, atypical ganglion and large spindle cells may be found. Paragangliomas may present a variety of giant cells.

The paragangliomas of the intestinal tract form an interesting group. Over three hundred paragangliomas of the appendix have been reported. Over one hundred have been found in the small intestines, and cases have been reported in which these tumors have occurred in the stomach, large bowel, and rectum. Raiford recently reported twenty-nine cases from the Surgical Pathological Laboratory of the Johns Hopkins Hospital. The number recorded is now thirty-five. Twenty-two occurred in the appendix, ten in the small intestine, two in the large bowel, and one in the stomach.



They usually are found in adults. The symptoms of appendiceal paragangliomas (carcinoid) are suggestive of appendicitis. An operation is performed for appendicitis and a paraganglioma is found. Diarrhea, with melena, is the symptom frequently associated with paraganglioma of the small intestine. About twenty per cent undergo malignant changes. Eight of the cases studied by Geschickter and myself were malignant. Those of the small intestine become malignant more frequently than do those of the appendix. When metastases occur, they are found in the lymph nodes of the mesentery, about the aorta, and in the liver. If malignant changes occur, obstruction may develop.

I will cite the following case to indicate the history and course of a paraganglioma of the cecum: The patient, a white woman, aged 46, was admitted to the Johns Hopkins Hospital on October 20, 1930. She complained of attacks of abdominal pain, distention, and diarrhea. For several years she had been subject to attacks of dyspepsia which were variable in duration, intensity, and periodicity. The present attack differed from the preceding only in slightly greater severity. The only relevant detail in the past history was an attack of pulmonary tuberculosis twelve years before, from which she had apparently completely recovered.

The patient was a well-nourished white woman, in no acute discomfort. A small mass could be palpated in the right lower quadrant of the abdomen. This was about the size of a lemon, freely movable and not tender. Roentgenograms made following a barium sulphate meal showed a dilated terminal ileum, but no evidence of a constriction. Following a barium enema, however, roentgenograms revealed a large constricting filling defect in the cecum. A diagnosis of a tumor of the cecum was made, but the possibility of an inflammatory mass considered. An exploratory laparotomy was advised.

Operation November 6, 1930. A hard and freely movable mass could be felt in the cecum when the abdomen was opened. Some of the regional mesenteric lymph

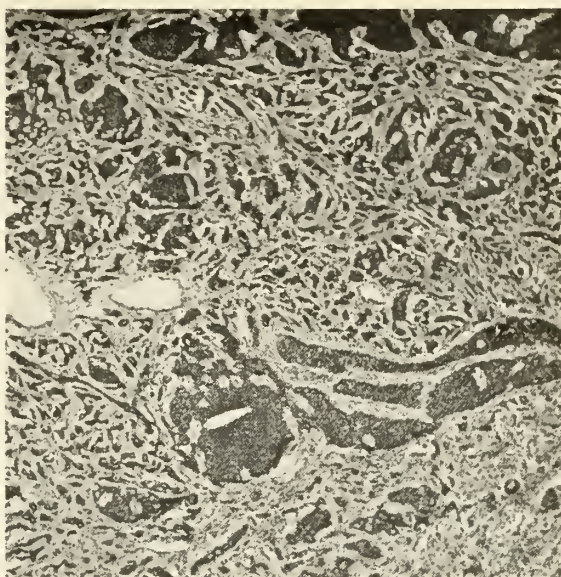


Fig. 7—Histologic preparation of specimen shown in Fig. 6. The patient, a white woman, age 46, had abdominal symptoms of two weeks' duration. The cycle of cell growth shown in the photomicrograph is from small neuroblasts to the large masses of cells of a chromaffin type.

nodes were enlarged and hard, but it was thought possible to do a resection. The terminal ileum, cecum, and ascending colon were resected with some of the enlarged nodes. Some at the point where the superior mesenteric enters the mesentery could not be removed.

The suture line perforated and a fecal fistula developed on the fifteenth day following operation. The fistula closed three months later, and the patient is now well, with no signs of recurrence.

The tumor was composed of densely packed cuboidal cells arranged in strands and compact groups. These were fairly uniform in size and possessed a moderate amount of granular cytoplasm. The granules stained dark brown or black with the silver impregnation technic, identifying the tumor as one of the argentaffin type. The stroma was quite dense and surrounded by nests of cells, leaving them as discrete islands of tumor tissue.

*Ganglioneuromas* — The term "neuroma gangliocellulare" was first suggested by Virchow. The first tumor of this kind was described by Loretz in 1870. Tumors of this kind have been described in both the

sympathetic and somatic nervous systems. Multiple ganglioneuromas have been observed in von Recklinghausen's disease. In a malignant ganglioneuroma large ganglion cells and smaller embryonic neuroblasts, from which the ganglion cells probably developed, have been found.

The ganglioneuromas are, as a rule, benign and solitary, but they may occur as multiple tumors and be malignant. They may occur anywhere in the central nervous system or peripheral nerves, as well as in the sympathetic system. Three of the eight cases studied by Geschickter and myself were malignant—an unusually high number.

The clinical course is usually slow, marked by progressive enlargement and eventually by pressure symptoms. These tumors occur clinically as the giant tumors of the mediastinum and as the large tumors of the retroperitoneal space.

I shall give the history of a ganglioneuroma which developed upon a peripheral nerve. A negress, aged 18 years, had had a painful, aching sensation in the calf of the right leg for three months. When the patient was recumbent the pain was relieved. Preceding this by two years was an ailment which the patient described as neuritis in both legs and photophobia. The exact nature of this illness could not be determined. She attributed the pain in the right leg, complained of on admission, to a fall the year before. A definite lesion in the region of the right calf was discovered a month before.

On the posterior surface of the right thigh about four cm. above the popliteal space was a firm, tender mass which involved the soft tissues. It measured 20x20x8 cm. Its lateral and upper margins merged with and infiltrated surrounding structures. Below the popliteal space in the right calf a hard, cord-like swelling two inches in length, which was extremely tender, could be palpated.

The tumor was explored on October 6, 1926. It was vascular and contained mucoid tissue among vascular areas. On October 15 the mass was excised. The patient was admitted to another hospital in November, 1930, and an operation was performed for

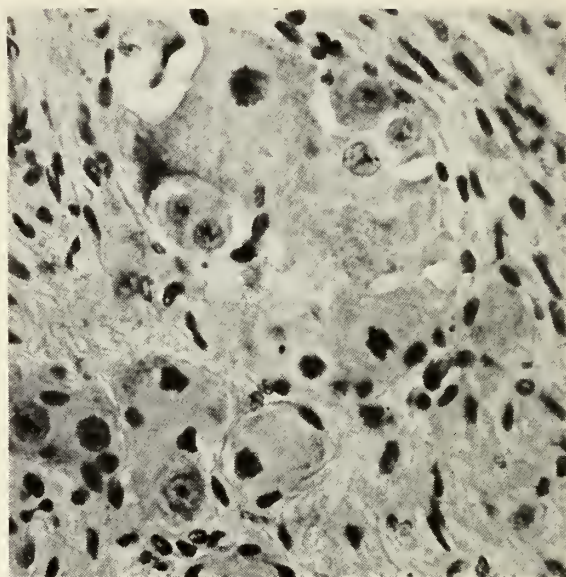


Fig. 8—Section of a ganglioneuroma showing the large ganglion cells which histologically are characteristic of this growth.

a recurrent tumor in the region of the right hip. The patient died on November 12 shortly after the second operation. Permission for an autopsy could not be obtained.

The gross specimen measured 12x10x4 cm. It seemed encapsulated. The surface was white. The cut surface seemed fibrous, but scattered throughout were hemorrhagic and yellow areas.

The histologic picture varied considerably. The greater portion of the tumor had a hyalinized, fibrous appearance, but there were many vascular areas. In the hyalinized areas were accumulations of small spindle cells, forming a reticulum, and large spindle cells such as are found in sarcomas arising from nerve sheaths. At the center of many such masses were cellular, fibrous areas, in which were embedded giant cells and an occasional ganglion cell. The tumor appeared to be a benign ganglioneuroma and a sarcoma of the nerve sheath.

The histories cited indicate how protean the clinical manifestations of tumors arising from the stem cell (sympathogonia) may be and how bizarre and variable the histological picture may be, depending upon the character and degree of cellular differentiation.



## HEALTH INSURANCE, ITS HISTORY AND GENERAL TREND\*

THEODORE MORFORD, M.D., Nashville

AS THE TIME drew near for me to choose my subject for a presidential address to this group of doctors of the Middle Tennessee Medical Association, my paramount aim was to select one which would have an equal appeal to all. In casting about, I realized that the much-talked-of subject, "Social Insurance" or "Health Insurance," would touch the heart-strings as well as the purse strings of each one of us. We seldom read our Medical Journal that we do not find at least one article on some phase of this subject. Our daily papers frequently carry some discourse touching on it, and it invariably crops up in the conversation when two or more doctors are together. Therefore, I have taken this opportunity to inform myself and bring to you gleanings from numerous papers which I have been fortunate enough to secure. It does not take the form of an original paper, but has been made up of quotations from and summaries of writings of men of authority.

I found that the authorities were at quite a variance as to their opinions, but I have tried to confine myself to the soundest of these and also to the principles handed down from the committee of the American Medical Association.

This subject presents a real problem, a fascinating problem, which is one of the four basic of interest in this country. The federal government has named *medical care* as one of the four essentials of life, the other three being *food, clothing, and shelter*. We Americans are rather jealous of our rights and our privileges. Above all things, we wish to reserve the right of choice in our daily activities, provided that choice does not work a hardship upon society.

We would be stunned if tomorrow we were told that we would have to trade at a certain market in our neighborhood because our neighborhood had been zoned and we, together with the other residents, had

been apportioned among the market men. We would hold mass meetings if some authority would suggest that an agency be set up with the right to tell us what kind of a house to live in and where, such agency, tax-supported and employed, to pick out the very house for us without our having any voice in the matter.

Now, if some bureau would select your wardrobe—possibly blue is not your color. Further comment really is unnecessary. A denial of the freedom of choice in three of the essentials of life—food, shelter, and clothing—has thus been pictured. Medical care now is considered officially as the fourth.

The freedom of choice of a physician, whose services may determine life or death, is a right that no American knowingly will relinquish. The problem is not really one in which a large number of people are suffering from *lack* of medical care, rather they are suffering from the burden, as they feel it, of paying for this care.

From an economic standpoint, the health of a country is of paramount importance to its progress. If we have been taught anything from the present depression, it is that the world must be considered as a unit, and that there is not such a thing as continental isolation. Economic and social events or changes in our country must necessarily have their repercussion all over the world, and national or geographical boundaries are not as effective in stemming social or economic tides as they are, for example, in checking epidemic disease.

The economic and professional sides of the practice of medicine are deeply affected and changed abroad, and we must take cognizance of all such changes in order to know what awaits us here. Therefore, we first consider the history of health insurance.

It should be emphasized at the beginning of this paper, however, that the *economic features* of medical care are far less important than some other features, partic-

\*Presidential address delivered before the Middle Tennessee Medical Association, November 8, 1934.

ularly the *quality* of medical service. Any plan of financing or organizing medical services which threatens to lower the *quality* of that service will, in the long run, be detrimental to the entire public welfare.

The French Revolution of 1789 in its formulation of "les droits des hommes" was the first to recognize that organized society has the duty to guarantee to each and every person protection and support in case of sickness. However the real organizers of the movement of health insurance were the old trade guilds and their mutual protective organizations.

The first mutual organization for assistance and sick benefit in Germany was started by the miners' union, which numbered fifty-three funds, with a membership of 56,500 people in 1841. This organization has preserved its separate entity up to this day. In 1849 the Prussian industrial code asked the employers to insure workingmen against illness, and taxed them with fifty per cent of the expenses incurred.

In 1876, there were 12,000 Hilfs Kassen (groups) with a membership of 2,000,000 people occupied in industries.

In 1881, Bismarck, in following his anti-socialistic policy, wanted to put the state on record as the fatherly guardian of the welfare of his working people, so he introduced the principle of compulsory insurance by appropriate legislation.

The Act of June 16, 1883, was the first legislative expression of the state asking aid sponsoring collective protection against sickness, accidents during work, and old age insurance. To this large group were added gradually unemployment insurance, maternity benefits, pensions for permanent injuries, and funeral expenses. All these activities were under state control and legislation. This is what constitutes the so-called social insurance.

In Great Britain there were very early types of contract practice in the economically limited industrial and agricultural district, besides the Poor Law system.

1. Many doctors had their own "private clubs," collecting from their members small weekly sums, in return for which the entire family was attended.

2. Other doctors arranged with owners of factories for medical attention of employees. Deductions were made from the wages of these employees and turned over to the physician, paying thus for the medical care of the entire family of each employee.

3. Friendly societies and trade unions.

Many weaknesses developed—(a) low pay for the doctor, (b) superficial and perfunctory medical service, (c) abuse on the part of the client, (d) overburdening of the doctors on account of very large numbers of patients, (e) canvassing and all kinds of questionable procedure on the part of the doctor, (f) low esteem for this form of medical practice from both doctor and patient.

Twenty-three of the leading countries of the world have already adopted compulsory sickness insurance, and seventeen others have voluntary programs. There are a great many different plans of sickness insurance, but a feature that we must bear in mind is that sickness insurance in every country is only a part of a much larger program of social insurance which is designed to cover a number of different risks. These risks fall into three main groups: (1) those of economic origin, (2) those of occupational origin, and (3) those of non-occupational origin, including death, sickness, maternity, invalidism, and old age.

The last country to enter the ranks of compulsory insurance is France, August, 1930. We see, therefore, an uninterrupted triumphant march of socialized medicine during the last fifty years. We prefer to call this system *socialized medicine* and not *state medicine*, which has other implications.

The real state medicine is where the doctor works as a civil servant under the supervision of the state. This is the present condition in Russia. The state bears the full cost of medical education and the graduates are at the disposal of the state. Fifty per cent of the medical students are women. Doctors are paid monthly salaries of from \$60.00 to \$120.00. Hospitals, clinics, maternity care, nurseries, treatment of venereal diseases, and advice on contraception are free to the population. Since January,



1932, the salaries of medical workers have been increased twenty-three per cent.

Sickness insurance has been introduced everywhere with very little consultation *with*, and often largely *against* the wishes of, the *workers* who were to become the patients, and the *physicians* who were to give the medical service.

"Originally, sickness insurance was intended to provide cash benefits to replace wages lost because of illness or incapacity. Later the purpose was shifted to provide medical care which was designed to restore the individual to health and earning capacity as promptly as possible. The shift was *from compensation to treatment and restoration*. The trend of thought in sickness insurance *now* is toward the *prevention* of illness and *stability*."

"Compulsory insurance does not consider whether an enterprise is profitable or not, but aims to distribute the cost of its maintenance over the whole range of productive activity.

"In compulsory health insurance the following points must be considered:

"*Principles*—(a) Distributing the economic burden of medical care over a large fraction of the population.

"*Financing*—(b) Combination of contributions from the insured persons, employers, compulsory savings, and indirect taxation.

"*Tendency*—(c) Fractional programs to include insurance against incapacity, disablement, unemployment, old age, and other economic risks.

"*Further Tendency* — (d) Shift from 'cash benefits' to benefits in kind."

"In England and in Germany it was political expediency and not the best interest of the people that caused the enactment of national insurance.

"Restoration rather than compensation is the principal function of present-day insurance. We have taken for comparison three countries representing three differentiated types: *Germany*, the first country with social insurance for the last fifty years; *Great Britain*, on account of its similarity in culture, language, etc., to our own country; and finally, *Austria*, which is the most advanced along lines of socialization.

All the other countries have pretty uniform features with some differences of detail."

They are in Great Britain the previous friendly societies or trade unions all under the designation of "approved societies"; in Germany they are the old guilds, the unions, and territorial units. Workingmen between sixteen and seventy years of age earning below or the maximum of \$1,250.00 per year in Great Britain or \$900.00 in Germany are insurable under the law. In Vienna there is no income limit. Every worker, servant, or apprentice comes under the provisions of the act. In Great Britain the care of the dependents of the insured is not included; in Germany it is included, but the yearly capitation is accordingly higher. In Germany the clerical, technical, and administrative force equals or surpasses the number of medical employees. For each single case of sickness a sickness slip must be purchased. This costs about twelve cents and has reduced considerably the number of applications for treatment. It was also intended to act in such a way.

After almost fifty years of social insurance in Germany and about twenty years in Great Britain, we can well talk of results. Medical practitioners should not be thought of as an organization.

The average income of the physician employed by insurance is: Great Britain, \$4,000.00; Germany, \$1,500.00; Austria, \$1,900.00.

The best interests of the physician mirror the general situation. In Germany the doctor is a pauper not on account of the insurance system, but because the entire middle class is starved and almost annihilated.

These countries have salaried positions for the educational hospitals and charitable functions of the state, besides those employed by the insurance companies, and we find that only about five per cent are wholly unemployed, *independent* practitioners.

We see that the income of the physician is much better in Great Britain than in Germany or Austria, because of the better economic conditions of the country at large.

*Advantages to the worker*—(1) "Preserves the self-respect of working people and prevents their being an object of charity. (2) Attention is given to minor ail-

ments, thus enhancing preventative medicine. (3) Patient is soon brought to the specialist and receives the benefits of modern medicine. (4) Choice of doctor, although limited, gives the patient independence. (5) The quality of medical service is still superior to the former lodge or society practice."

*Disadvantages*—(1) "The great number of patients per doctor impairs the physician's efficiency. (2) The will to recuperate is impaired, and malingering is rampant. (3) Confidence in the doctor, who appears as a lowly and overburdened employee, is lessened. (4) Overprescribing and the abuse of physical therapy neurasthenize the patients and undermine their character. (5) The patient acquires tendency to increase time of sickness and its ensuing benefits and compensations."

*Advantages to the physician*—(1) "The young graduate obtains a practice and a moderate livelihood. (2) The practitioner is enabled to obtain for his patients the modern means of diagnosis and therapy. (3) The free choice of physicians, although limited, favors display and success of personality. (4) The system favors specialization. (5) Once employed, the physician is more responsible to his own kind than to his client. (6) His fees are determined, his work and hours regulated. Vacations are obtained. (7) Private practice is an object of sale."

*Disadvantages*—(1) "Clerical work enormously increased. (2) The individuality of the physician is submerged. (3) The great number of daily callers prevents thorough examination and diagnosis. The work is mostly identification and sorting for institutions or specialists. (4) The relation between patient and doctor is often antagonistic. Condescendence to patient is a profitable abuse. (5) The attitude of the patient is one of distrust. (6) His medical activity is checked by superior authority. (7) His income, although superior to the club or lodge practice, is definitely limited."

One thing is quite certain: it is *not* a system of *stability*, but one of eminent *liability*. Conflicting tendencies abound, and general consent is still missing. In Ger-

many a tendency to centralize and unify the different funds, to curtail the number of patients on the list of each doctor, to stabilize the income of each employed physician, and to extend institutionalization and specialization.

The fact that the average time lost per worker through illness has risen from six (6) days per year, prior to 1900, to twelve (12) days per year, in 1925, is certainly not due to an increase in the amount of illness, as the declining death rate shows.

In Great Britain the medical profession seems to be more or less reconciled to the situation. No report on health insurance would be complete if we omitted to mention the *Dominion of Canada*, a country on our continent, so very similar to our own in its economic and social aspect. While Canada does not register yet a law of compulsory health insurance on its statutory books, the question of socialization of the practice of medicine along continental European lines is much debated and proposed. Some form of health insurance is found in British Columbia, Saskatchewan, Alberta, and Ontario.

The doctor in the United States has the smallest group of patients in the world, according to population; the average is 800. Sweden is largest, with an average of 2,860. Of course, other factors must be taken into account, as, for instance, the use and demand for doctors. One thousand people in New York will need more medical service than perhaps one hundred thousand in Mississippi.

*Conclusion*—(1) Compulsory health insurance abroad is an unavoidable development of social and economic conditions. (2) It is an evolution step, beginning with mutual benefit organizations and contract practice, passing through the phase of voluntary health organizations, and terminating with state control of a socialized medicine or state medicine. (3) Its present insufficiencies prevail over the benefits it confers on the population. (4) The modern practice of medicine, with its implicit high cost of diagnosis and therapy, enhances socialized medicine and sentences to extinction the former individualistic practice.



(5) A judicious and economically satisfactory form of salaried employment is the most desirable prospect for the profession.

These conclusions bear on the situation abroad and have only a remote relation to conditions and future developments in our own country.

Individually, we may foresee the end of the old family doctor and the end of the individual practice of medicine, but as to the future of *medicine*, we all may remain optimistic.

Will this old and most noble profession be degraded by socialization and impaired economic returns? Will the practitioner cease to be an altruist? We believe not. There will be no loss of character on account of the so-called subdued individualism. We all know that the principle of differentiation, of individualization, is a supreme biological urge in life. *It cannot be downed*. As long as there is a physician, there will be love of the profession, thirst for knowledge, and that human sympathy, which, after all, fills the life of every one of us and prompts us to give to our patients the best that is in us.

We can readily see that sickness insurance is in an experimental stage. These systems are continually changing, which is due to constant dissatisfaction with details.

This continuous tinkering creates an extremely complex set of institutions. There are three thousand sections in the German laws on sickness insurance, and this is only the beginning.

Nearly every statement in regard to the working of sickness insurance is hotly disputed, but on no point is the evidence more conflicting than in regard to the *character of medical service*. Propagandists for insurance grow enthusiastic in its praise, while opponents quote the frequently expressed German opinion that it is "always of the second class."

A questionnaire concerning various features of sickness insurance was sent to the foreign correspondents of The Journal A. M. A., containing the following questions bearing upon the quality of the service:

1. Has the character of medical service changed under sickness insurance?
2. Does the method of diagnosis under

sickness insurance differ from that used in private practice?

3. Is there an increase or decrease of medication?

The majority of replies gave a similar opinion: the medical service has fallen far below the previous care given a patient; the method of diagnosis is different; and there is a great increase in medication.

At no time, in any country having such a system (of health insurance), has the organized medical profession opposed the principles of insurance as a method of providing medical care for the underpaid.

According to the view of the physician, the purposes of sickness insurance should range in the following order:

1. To help restore the lost capacity for labor.
2. To protect the capacity for labor.
3. To assist the insured to maintain his standard of living.

Three forms of payment are in operation in the different systems of insurance, often all of them in the same system: (a) salaries, (b) per capita lump sum, and (c) according to the medical act. The societies favor and the physicians oppose these in the order given.

"The state cannot manage without commanding, and it will happen, therefore, where the state assumes authority, that the medical profession will fall under the thumb of the politician."

"When professional services, legal or medical, are rendered in terms of *cost* instead of *value*, the type of that service soon becomes meager, inadequate, and insufficient."

The people of the United States spend, on the average, about \$25.00 or \$30.00 per year for medical care. But the costs of medical care are not equally distributed among the population.

There are in the United States several types of medical organizations which apply the principle of "group payment" for the cost of medical care. These procedures may be referred to as sickness insurance, although most of the arrangements are not classified as insurance contracts by the respective states.

Two types of financial risk result from

illness: (a) the loss of money income, (b) the costs of medical care. Some life insurance companies provide a monetary benefit during a period of unemployment resulting from an accident or from disability caused by sickness. As a rule, these companies do not provide medical care, nor do they guarantee to reimburse the insured persons for the costs of medical care. The rates for such protection are relatively high, and it is carried by people in the upper middle classes or the well-to-do. There are also sick benefit clubs organized by trade unions or by lodges, which provide monetary benefits during periods of illness or accident to their members. In some instances these benefits also include a certain amount of medical care from a lodge doctor. On the whole, however, the monetary benefit is very limited, and the quality of the service exceedingly poor.

There are approximately four hundred different business enterprises that have established more or less complete medical services for their employees. No two plants are identical as to method of financing or as to scope of the services made available to the employees.

Industrial medical service *appears to be a permanent part of the business organization of this country*, and approximately two million workers are estimated to receive more or less complete industrial medical service.

The medical care referred to as industrial medical service is not to be confused with service financed and provided under the workmen's compensation insurance agreement in the various states.

In Oregon and Washington, about ten years ago, private medical insurance companies were formed to make contracts with employers and provide services for accidents which are compensable under the Workmen's Compensation Law. In recent years they extended the service to include the care of ordinary sickness of employees. The insurance companies make arrangements with designated physicians and hospitals to serve policyholders according to an agreed fee schedule, the fees being paid by the insurance companies. As a rule, these policies are available only to groups

of employed persons through the sponsorship of the employer.

Recently some casualty insurance companies in California and a few companies specially organized for sickness insurance have offered policies which may be sold to individuals, but which are sold at lower rates to organized groups of employees at a fixed amount per year per member. These types of policies have been ruled in California as legally constituting "service contracts," and not as contracts of insurance, subject to regulation by the state insurance department. As a result, some irresponsible fly-by-night companies have been organized, with resulting injury to the health of the people as well as to medical profession and institutions. In some cases, as in Roanoke Rapids, N. C., several enterprises have combined to provide all their employees and their families with medical and hospital care, supported jointly by regular payments through deductions from wages and contributions from the employer. As a result, this type of medical service takes on the nature of a community medical service.

One of the most comprehensive industrial medical services in the United States at the present time with direct charge against the treasury of the company is that provided at the Endicott-Johnson Shoe Company, Binghamton, N. Y. This organization in 1928 provided free medical care for 15,000 employees and their families. There are no restrictions on the kind or amount of medical care which an individual may receive.

A more recent development in group payment for medical care is the service to the students of the leading universities and colleges in the United States. Usually the student pays a fixed amount for medical services, which is included in tuition fees. The amount of service and the annual fees vary with the particular institution.

Some of the different types are:

In Dallas, the Employees Mutual Benefit Association of the street railway company has arranged a monthly pay roll deduction to provide money benefits and medical care by physicians during periods of sickness, or disability other than that covered by



the Workmen's Compensation Laws. There are about 800 members who pay eighty-five cents per person per month for professional services by the physicians of a well-known clinic in the city of Dallas. In addition to this contribution the company makes a payment of \$100.00 per month, with the result that approximately ninety-eight per cent of the employees of the street railway company are members of the association, the other two per cent being transient workers or those who for particular reasons are not eligible.

A unique arrangement for medical care has been established in Baton Rouge, La. The employees of the local Standard Oil Company refinery some years ago organized the Stanocola Employees Medical and Hospital Association for the purpose of providing medical care for themselves and their families. Various arrangements were tried, and in 1928 the association established its own clinic with seven full-time practitioners to render complete medical care to the 2,700 members and their families. A monthly deduction of \$3.00 per certificate holder guarantees complete medical care for the employee and his family. A maximum of \$250.00 is allowed for any particular case for hospitalization and for special nursing. Maternity cases are not hospitalized at the expense of the association except when it is considered medically necessary by the attending physician. Membership is voluntary, and about seventy-five per cent of the white employees are members of the association. The association owns a clinic building as well as complete medical and surgical apparatus.

"Insurance is a device by which a group of people pay for their own medical care. Taxation is a device by which one group pays for another group's medical care. Sickness insurance is a plan by which self-supporting people continue to remain self-supporting as a group, as well as individually. It is not a means of dispensing charity. It is a means of avoiding charity."

From Dr. Robb, of Detroit, we get the following valuable information:

"The question of what the future holds in store for medical practice looms large and foreboding in the minds of many.

When the depression is over, will the practice of medicine, regaining its normal proportions, retain its present characteristics and methods, which permit doctors to earn an adequate livelihood? Or will it emerge so distorted and misshapen, so infused with commercialism, that it becomes a profitable enterprise for the promoters and barely a bread-and-butter proposition for the doctors?"

At the present time, there is every indication that medicine will be exploited by promoters of health insurance plans and others of like kind, who see an opportunity to reap a profit.

Today seems to be recognized as the most propitious time to attack the doctor at the weak spot which financial adversity has produced in his armor, and no effort will be spared to induce him to change from his present uncertain and underpaid status.

That he would be making a serious mistake to allow a middleman to gain a foothold between himself and his patient is realized by every practicing physician. The idea is not to his liking because he knows that health insurance plans, in the great majority of instances, while partially solving the doctor's problem, do not, aside from making a gesture at it, begin to solve the patient's problem. At the same time, he realizes full well, if he has observed the trend over even a short period of years, that the group from which he may expect to derive a livelihood is being slowly but surely decimated, and that this process keeps working slowly on, during both lean and fat years.

In this country, big business has taken a position similar to that of royalty in old Europe. It seeks and gains favor with the masses through paternalistic gestures. Afraid of being dethroned, it throws a hope to the mob to take care of a few physical needs. Medicine finds itself being changed to serve the purposes of its hierarchy.

The allotment of huge funds for the establishment of clinics, the doling out of medical services with a free hand, the legalized abuse in veterans' care are all examples of the generosity of our American "royalty," contributed at the expense of the medical profession which, in all its ges-

tures, must give free and freely of its only stock in trade—service. Now, they see in health insurance an opportunity not only to placate the people, but also to realize a handsome profit themselves. They little realize that by so doing they are laying the very foundation for their own destruction, since it must be recognized that the entering wedge of socialism is most readily made through the agency of the medical profession.

Is it surprising that the doctor should look at the entire problem in a hopeless manner, and that he may, because of his turmoil, decide to desert the ranks of organized medicine? If we should adopt health insurance our present high rate of taxes would be doubled.

We must not ignore such insurance schemes for three reasons. First, they hold disadvantages to the individual practitioner. Second, they destroy the unity and strength of organized medicine. And third, nineteen state legislatures have already given consideration to health insurance.

Almost every insurance company in America has devised some health insurance plans. If our profession does not take action immediately, the opportunity to control the admission of these plans may be lost to the physician for all times.

The medical profession is the only group qualified to pass judgment on the problems of medical service. Organized medicine must formulate its own application of the health insurance principle if it is to remain master of its own destiny.

We must be ready to throw into the breach a plan of our own backed by the A. M. A.

At the meeting of the American College of Surgeons in Boston last October, they assailed "state medicine," but urged "health insurance." The plan favored is the organization of hospitals in the city units by the local medical organization, and the establishment by their organization of a prepayment plan under which, by the payment of less than a dollar a month per person, the cost of the hospital fees would be taken care of out of the general fund, and thus make it easier for the person treated to pay the surgeon's fee. A county system

was considered practical, but anything resembling a nation-wide plan was declared unwieldy and opposed as "state medicine."

A definite plan coming from the medical profession and controlled by that group is sure to be more favorable to the physician and patient than any plan brought forward by outsiders, and is certain to counteract any efforts to disrupt the medical profession.

I can think of no better way of bringing this discussion to a close than to quote you the ten fundamental principles which were presented to the Cleveland meeting of the A. M. A. by the Board of Trustees, who suggest that they be followed by all constituent bodies of the A. M. A. as a basis for the conduct of any social experiment.

"1. All features of medical service in any method of medical practice should be under the control of the medical profession. No other body or individual is legally or educationally equipped to exercise such control.

"2. No third party must be permitted to come between the patient and his physician in any medical relation. All responsibility for the character of medical service must be borne by the profession.

"3. Patients must have absolute freedom to choose a legally qualified doctor of medicine who will serve them from among all those qualified to practice and who are willing to give service.

"4. The method of giving the service must retain a permanent, confidential relation between the patient and a 'family physician.' This relation must be the fundamental and dominating feature of any system.

"5. All medical phases of all institutions involved in the medical service should be under professional control, it being understood that hospital service and medical service should be considered separately. These institutions are but expansions of the equipment of the physician. He is the only one whom the laws of all nations recognize as competent to use them in the delivery of service. The medical profession alone can determine the adequacy and character of such institutions. Their value de-



depends on their operation according to medical standards.

"6. However, the cost of medical service may be distributed, the immediate cost should be borne by the patient if able to pay at the time the service is rendered.

"7. Medical service must have no connection with any cash benefits.

"8. Any form of medical service should include within its scope all legally qualified doctors of medicine of the locality covered by its operation who wish to give service under the conditions established.

"9. Systems for the relief of low income classes should be limited strictly to those

below the 'comfort level' standard of incomes.

"10. There should be no restrictions on treatment or prescribing not formulated and enforced by the organized medical profession."

#### REFERENCES

W. C. Rappleye, M.D.—"Sickness Insurance."

C. H. Gibbons—"The Modern Hospital."

A. M. A. Bulletin—"A Critical Analysis of Sickness Insurance."

C. B. Reed—"Handbook of Health Insurance, State Medicine, and the Cost of Medical Care."

C. Rufus Rorem, Ph.D.—"Sickness Insurance in the U. S."

J. Milton Robb, M.D.—"What Shall Be the Attitude of the Physician Toward Insurance Plans?"

# 102nd Annual Meeting

## Tennessee State Medical Association

### April 9, 10, 11

Headquarters—

Noel Hotel

Nashville

## AN INTRODUCTION OF A NEW QUANTITATIVE COMPLEMENT FIXATION SYSTEM FOR SYPHILIS WITH REFERENCE TO OLDER SYSTEMS

CHARLES G. RANSOM, Litterer Laboratories, Nashville

**D**EVELOPMENT of a better complement fixation test has been sought by many serologists since the time of Wassermann. The manufacture of better antigens and the limitation of non-specific reactions have been the greatest cause for investigation.

The object here is to introduce a new system which has been evolved from the improvements made upon the older systems of complement fixation and the reason for abolishing the warm-bath method of primary fixation. The warm-bath method is *obsolete* and has been proven inferior by all who have compared it with the refrigerator method, but for some unexplainable reason it still exists. Time is its only redeemable factor, but there is never a case of syphilis that cannot wait one day longer for a report when the patient's whole life may be affected by that report.

The physician who diagnoses or treats syphilis will find a definite advantage in being familiar with the method employed in examining the blood of his patient and its degree of accuracy as compared with other methods. At the present, there are two distinct divisions made in complement fixation methods of testing syphilitic sera:

(1) The warm-bath primary fixation of 38 degrees C.

(2) The ice-box or refrigerator primary fixation of 6 degrees to 10 degrees C.

From the latter came the quantitative method for determining the exact amount of syphilitic reagin present. By this is meant how strong the reaction actually is and not 1, 2, 3, or 4 plus which is regarded as a qualitative test. A 4 plus reaction may be 8, 16, 32, 64, etc., plus in the quantitative test. The new quantitative system was conducted under the same conditions as the regular qualitative system employed

in the Litterer Laboratories, where both systems were run at the same time.

A review of the literature will disclose the preferred methods now in use. Leredde and Rubinstein published a paper stating the best results were being observed with an ice-box period of primary incubation. Thomsen and Boas found better fixation at 16 degrees to 18 degrees C. Larkin, Levy and Fordyce, and Berghausen favored the ice-box fixation over one hour fixation in the warm-bath. Keidel and Moore observed 10.7 per cent more positive reactions among twenty-eight cases of untreated syphilis in tests conducted by ice-box incubation, and 37.8 per cent more positives with sera of 148 treated cases with an ice-box than with a warm-bath incubation at 38 degrees C.

Kilduffe (1) said: "A method which is in very wide use and which, after an extensive and prolonged investigation in some thousands of examinations (well over 10,000), surpasses any complement fixation test I have experimented with is that devised by Kolmer."

Kolmer (1) compared five complement fixation systems. The antigens were kindly furnished by the respective authors. These added to the accuracy of the comparative test and were carefully titrated for each method. The percentage of true positive reactions were as follows:

TABLE 1 (Kolmer 1)

|                                                |     |
|------------------------------------------------|-----|
| U. S. Army (Craig)-----                        | 78% |
| Thomas and Ivy-----                            | 60% |
| N. Y. City Health Department-----              | 60% |
| Kolmer old test (cholesterolized antigen)----- | 80% |
| Kolmer new test (quantitative)-----            | 86% |

The sera were from treated and untreated cases of syphilis and using nonsyphilitic controls. The positive reactions by all methods were specific; the new quantitative method, however, proved the most sensitive.



TABLE 2 (Kolmer 2)

A COMPARISON OF REFRIGERATOR AND WARM-BATH  
FIXATION IN 100 SERA OF SYPHILITIC AND  
NONSYPHILITIC ORIGIN

| Incubation                                                | Anticomple-          |                      |                     |
|-----------------------------------------------------------|----------------------|----------------------|---------------------|
|                                                           | Positive<br>per cent | Negative<br>per cent | mentary<br>per cent |
| (a) 18 hours refrigerator and<br>10 minutes warm-bath---- | 63                   | 35                   | 2                   |
| (b) 4 hours refrigerator and<br>10 minutes warm-bath----  | 58                   | 39                   | 3                   |
| (c) 3 hours refrigerator and<br>10 minutes warm-bath----  | 54                   | 37                   | 9                   |

A definitely more sensitive reaction is noted with relation to the time of primary fixation in the refrigerator.

Kilduffe (2 and 3) said: "The practical superiority of fixation at ice-box temperatures (6 degrees to 10 degrees C.) over fixation at body temperature (38 degrees C.) is no longer open to debate and has been proved beyond the shadow of a doubt.

"It also seems to have been demonstrated conclusively that more sensitive reactions are obtained when the period of primary incubation is prolonged (sixteen to eighteen hours). While this necessarily prolongs the time required to complete the test and so delays the reporting of the results, the increased sensitivity and general reliability so obtained are more than commensurate.

"The delicacy of the Kolmer technic is well illustrated by the results obtained with it in the early stages of syphilis, clear-cut and definitely positive reactions being reported as early as three days (Irvine and Stern) and four days (Kilduffe) after the appearance of the primary lesion, and is also further evidenced by the increased number of positive reactions and the lesser number of false negative reactions obtained with this technic in all stages of syphilis."

This attribute of delicacy is important in relation to the treatment of syphilis. Not only are positive reactions slower to disappear by Kolmer's method, but, as has been pointed out and corroborated by numerous others, relapsing positive reactions are picked up much earlier and resumption of treatment thus brought about.

False negative reactions occur with this

method as with all methods because of factors inherent in the disease and in the complement fixation test, but Kolmer has never observed a true false positive in any disease except yaws when the quantitative system is used.

After reviewing this literature one would conclude a definite advantage is obtained by the ice-box fixation over the warm-bath fixation and by the quantitative test over the qualitative test. It is impossible to switch automatically from one type of fixation to the other, without making changes in technic. The reason for this is that the temperature and duration of the primary incubation have an important bearing upon the destruction or inactivation of complement entirely apart from the amount fixed or absorbed by antigen and antibody.

#### THE NEW TEST

The new test is to determine the degree of reagin in the blood of a syphilitic. Many patients and physicians have the impression that if a report reveals a 4 plus reaction, the blood contains as much syphilitic reagin as another blood reporting a 4 plus reaction. This, of course, is not true and may be proven by titration of the blood sera by quantitative complement fixation method.

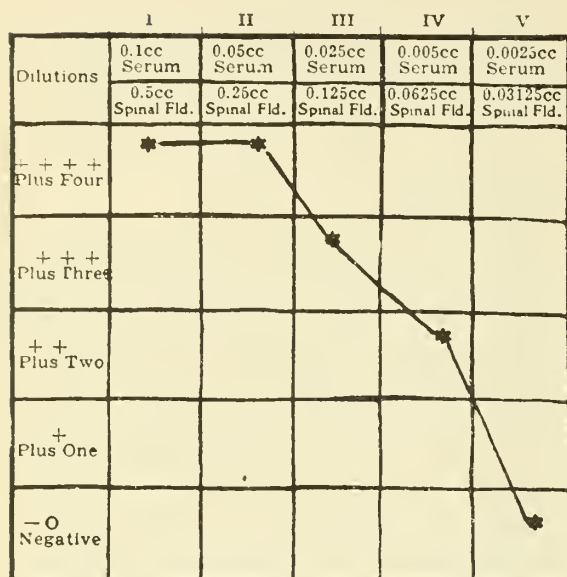
The quantitative method described here is a modification of Kolmer's, but using his antigen. The essential difference is in the strength of reagents used, and the method of diluting the sera, although expressed in a similar degree of fixation.

Below is a self-explanatory report sheet of Kolmer's (3 and 4) quantitative reaction compared with the new test for quantitative estimation of complement fixation:

Fig. 1

#### KOLMER'S REPORT

Dr. ----- Date -----  
Patient -----  
Specimen of blood -----



Reading: 44310

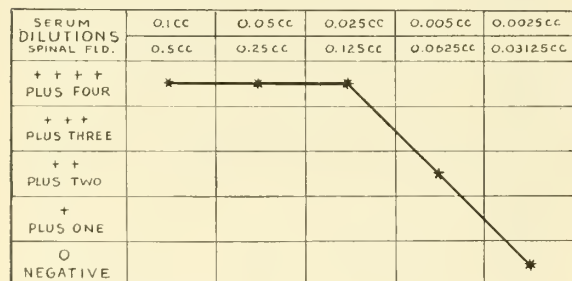
Interpretation: Very strongly positive

Fig. 2  
NEW TEST REPORT

Dr. \_\_\_\_\_ Date \_\_\_\_\_

Patient \_\_\_\_\_

Specimen of blood \_\_\_\_\_



Reading: 44420

Interpretation: Very strongly positive

It has been proved that comparative tests of the two methods gave similar degrees of fixation, save in a few cases in which the degree of fixation was stronger in the new test. Kolmer states that the first two tubes will give 4 plus reactions and 3 plus in the third tube in strongly positive sera. This amount of fixation always occurred in the new test and frequently as much as 4 plus in the first three tubes.

Table 3\* shows the results of 100 treated and untreated cases of syphilis in the new

quantitative test as compared to the qualitative.

The graph is divided into four zones:

First zone, very strongly reacting sera.

Second zone, strongly reacting sera.

Third zone, moderately reacting sera.

Fourth zone, weakly reacting sera.

The majority of the known untreated cases were in zones one and two, and the known treatment cases in zones three and four.

Treatment cases could not be accurately separated from untreated cases, as many of these were referred sera. The untreated cases that were separable gave their highest per cent in reading 44410. The known treated cases gave reactions ranging from 44100 to 01000.

In comparing the new quantitative test with the qualitative test, it may be noticed that occasionally a serum reacted stronger in the second tube (.05 cc. of serum) than in the first tube, which represents the largest quantity (.1 cc. of serum). The theory of this reaction has not been definitely disclosed. It may be similar to that of colloidal gold test for spinal fluid, where a leucic curve is represented by ten tubes with serial dilutions of spinal fluid, with a reading of 1234510000. In any event, this sort of reaction is very important because a false negative may be reported when a strong fixation occurs in the more dilute serum.

The reason for adopting this particular technic rather than that laid down by Kolmer was to enable us to compare the antigens used in our regular qualitative test, and to be able to run a quantitative test with the same strength of reagents already in titration balance. The reliability of a similar change in other systems cannot be predicted, as many factors are influenced, but with this technic the two may be conducted under the same conditions and with reagents of the same strength. The only change is that of serum dilutions.

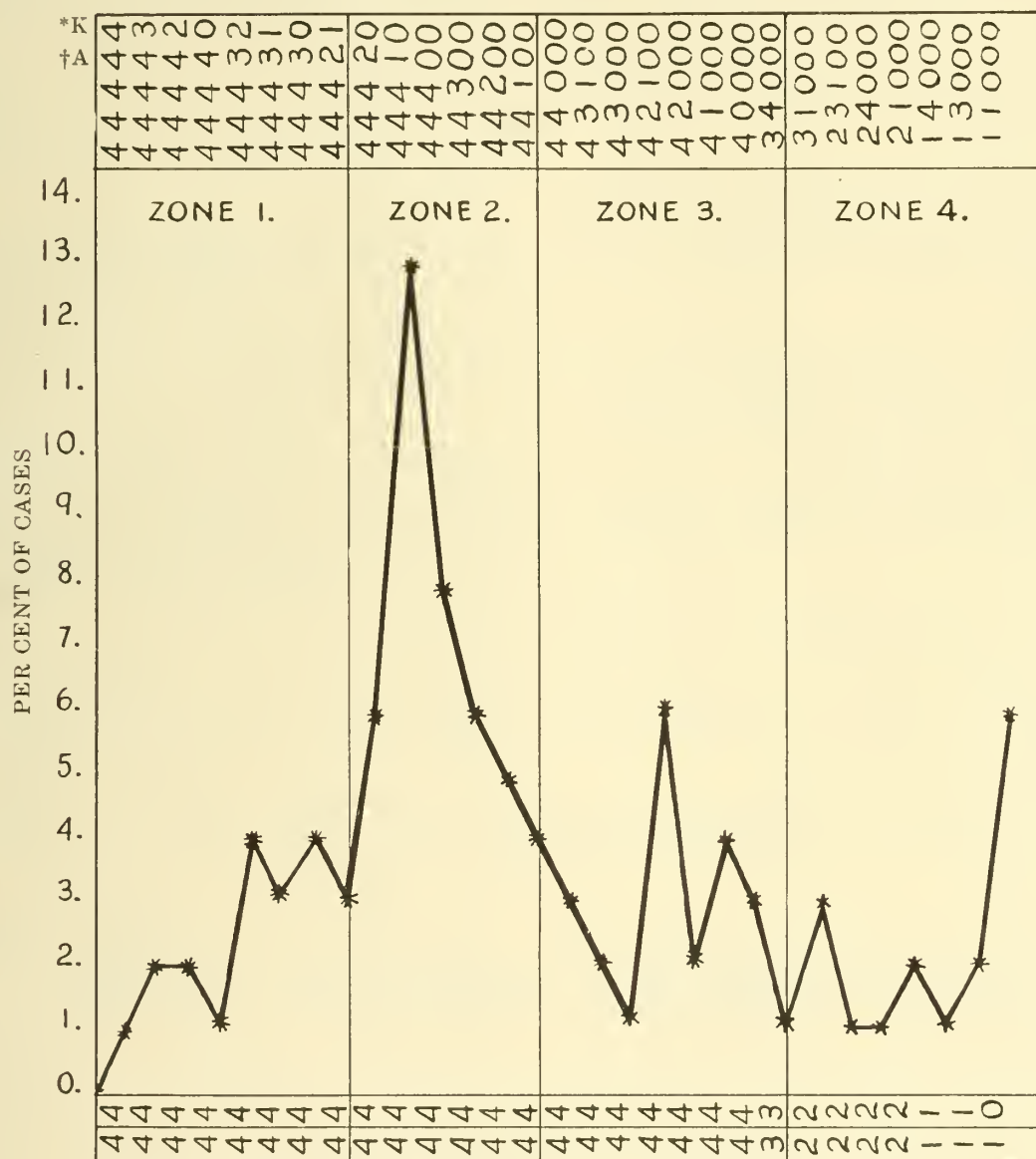
There was no advantage in the use of cholesterolized alcoholic antigen over Kolmer's antigen when the serum dilutions were made, as in the new quantitative test.

\*Table 3 on following page.



TABLE 3  
ONE HUNDRED TREATED AND UNTREATED CASES OF  
SYPHILIS

## NEW QUANTITATIVE TEST



\*Kolmer's antigen.

†Cholesterolized alcoholic antigen.

REGULAR QUALITATIVE TEST

### TECHNIC FOR THE NEW QUANTITATIVE TEST

Step 1 (blood).

Tube 1: .1 cc. of whole serum plus .3 cc. of .9 per cent NaCl.

Tube 2: .1 cc. of whole serum plus .3 cc. of .9 per cent NaCl.

Tube 3: .1 cc. of whole serum plus .8 cc. of .9 per cent NaCl.

Mix and withdraw .4 cc. for the following:

Tube 4: .2 cc. of dilute serum plus .2 cc. of .9 per cent NaCl.

Tube 5: .05 cc. of dilute serum plus .4 cc. of .9 per cent NaCl.

Tube 6: .05 cc. of dilute serum plus .8 cc. of .9 per cent NaCl.

And discard .4 cc. of the mixture.

Step 1 (spinal fluid).

For each spinal fluid arrange 6 regula-

tion tubes and place .5 cc. of .9 per cent NaCl in Nos. 3, 4, 5, and 6.

Into the first, second, and third tubes place .5 cc. spinal fluid; mix No. 3 and transfer .5 cc. to No. 4; mix No. 4 and transfer .5 cc. to tube No. 5; mix No. 5 and transfer .5 cc. to tube No. 6; mix No. 6 and discard .5 cc.

#### Step 2.

Put (correctly titrated) .1 cc. of antigen dilution in all tubes except tube 1, which is serum control.

#### Step 3.

Put (2 full units correctly titrated) .5 cc. of 10 per cent complement in all tubes.

Place in refrigerator for 18 hours at 6 degrees to 10 degrees C.

Place in warm-bath for 15 minutes at 38 degrees C.

#### Step 4.

Put (correctly titrated) .1 cc. of amboceptor in all tubes, then .5 cc. 5 per cent sheep cells.

Place in warm-bath for 30 minutes at 38 degrees C.

Read results in one hour.

The advantage and disadvantage of the quantitative test are listed by Kolmer (5) as follows:

"(1) It gives an index to the degree of spirochetic activity, although this is not parallel with the clinical state of the patients because the number and severity of lesions and symptoms may depend more upon the physiological importance of the tissue infected than upon the number and activity of organisms present.

"(2) It gives serological evidence of provocative Herxheimer reactions.

"(3) It gives an index to the influence of specific medication and has proven of special value in estimating the comparative spirochetic activity of medicaments.

"(4) It enables one to chart the serological results in individual cases.

"(5) It increases the accuracy of serum diagnosis because tests conducted with single doses of serum like .1 cc. and .2 cc. may occasionally give falsely negative reaction

when a smaller amount like .05 cc. yields a true positive reaction.

"The only disadvantages are the slightly greater time and larger amounts of reagents required, but, with a little practice, the time is lessened. The importance of the former is reduced to a minimum, while the improved results more than justify the quantitative procedure from the standpoint of economy."

Other questions arose like: To what degree of accuracy and sensitivity is the quantitative test over the precipitation tests, such as the Kline and Kahn? An answer to these questions may be that of Kilduffe (4) with the Kahn test: "This test in the hands of skilled workers produces results in agreement with those of the complement fixation test in a high percentage of sera (98 per cent, according to Kahn) (80 to 95 per cent in the hands of other workers), but has the disadvantage, in my experience, common to all precipitation tests, of being difficult to read in the very type of cases in which it should be the most useful—the weakly-reacting or border-line sera seen in latent or tertiary syphilis under treatment."

In my experience of 30,000 comparative tests of complement fixation with the Kline test, results were found to be similar to those of Kilduffe in the Kahn test.

The specificity and the incidence of false negative reactions in precipitation tests are still being investigated.

The greatest advantage of the Kline has been as a check for comparison. Occasionally, a blood would react strongly with the Kline test and would be negative with the complement fixation. In most cases the clinical findings checked with the complement fixation. The reverse reaction has also occurred and clinical evidence again checked with the complement fixation test.

False positives are the greatest fallacy of the Kline. It is of great value in selecting positive sera a day earlier when the serologist wishes to run the quantitative test in conjunction with a qualitative. This will lead to only an infinitely few overlooked positive cases, such as negative Kline and positive complement fixation.



## SUMMARY

1. The results obtained by the technique described indicate the superiority of the refrigeration method of primary fixation over that in which the warm-bath is used.

2. A new system of complement fixation is presented which reduces the number of false negatives and produces a 10 per cent increase in true positive reactions when compared with the older methods.

3. A new system is proposed for expressing in a quantitative rather than a qualitative manner the amount of syphilitic reagin in the blood or spinal fluid.

4. A graphic method showing the efficacy of treatment is offered to the medical profession or to the physician.

I wish to express my sincere appreciation to Dr. William Litterer for his valuable counsel, and Misses Polly Horton, Mary Bretney, Helen Gaston, and Mildred Bragg for their technical assistance.

## BIBLIOGRAPHY

Berghausen—*Jour. Am. Med. Assn.*, 1919, 62, 996.

Keidel and Moore—*Johns Hopkins Hosp. Bull.*, 1921, 32, No. 368.

Kilduffe—"Clinical Interpretation of Wassermann Reaction," 1926 (1) 182, (2) 181, (3) 183, (4) 189. Lea and Febiger, Philadelphia, Pa.

Kolmer—*Am. Jour. Syph.*, 1920, 4, 166.

Kolmer—"Serum Diagnosis by Complement Fixation," 1928 (1) 476, (2) 308, (3) 336, (4) 338, (5) 290. Lea and Febiger, Philadelphia, Pa.

Larkin, Levy and Fordyce—*Jour. Am. Med. Assn.*, 1918, 60, 1589.

Leredde and Rubinstein—*Bull. Soc. Franc. d. Dermat. et d. Syph.*, 1913, 24, 93.

Litterer and Waterson—*Southern Med. Jour.*, 1918, 11, 263.

Palmer—*Jour. Amer. Med. Assn.*, 1922, 79, 724.

Regner—*Jour. Lab. and Clin. Med.*, 1921, 7, No. 1.

Thomsen and Boas—*Hospitalstidende, Copenh.*, 1913, 46, 1029.

Write for Reservations at the

# NOEL HOTEL—NASHVILLE

102nd Annual Meeting

April 9, 10, 11

Tennessee State Medical Association

## INDICATIONS FOR OPERATION IN CASES OF CHOLECYSTITIS\*

H. H. SHOULDERS, M.D., F.A.C.S., Nashville

THE LITERATURE on the subject of cholecystitis has multiplied with such enormous rapidity in recent years that it is necessary to take stock, so to speak, of developments at frequent intervals.

Much of the literature is repetition, of course. However, our knowledge of the anatomy and functions of the gall bladder has been increased. Our conception of the process "Cholecystitis"—its complications and its relationships to pathologic processes far removed from the gall bladder—has been broadened.

Our ability to recognize and treat the disease has been improved tremendously. However, there still is dispute concerning many phases of the subject, so much so that we, who are engaged in the task of interpreting such literature and applying the knowledge thus gained to patients, are at times confused as to the proper advice to be given and the proper treatment to be applied in a given case.

There is much undisputed information on the subject which it might be worth while to review.

There is no dispute as to the prevalence of cholecystitis. From autopsy rooms, throughout the world, there comes the information that from 21 to 32 per cent of all *adult persons*, who come to the autopsy table, have gallstones in the gall bladder. From the same source, and from the clinical laboratories and from clinical experience, there is undisputed evidence to the effect that approximately the same proportion of adult persons have some degree of cholecystitis without stones. This means that the disease cholecystitis, with or without stones, is a very prevalent condition, affecting approximately 40 per cent of the adult population.

There is no dispute as to the age incidence of the disease. It occurs in all ages, even in infancy, though a majority of cases are

recognized in middle life between the fortieth and fiftieth year.

These facts suggest at least that the once popular diagnostic term "biliousness" may be revived and assigned to a portion of these milder cases of cholecystitis.

There is no dispute as to the organism most frequently associated with cholecystitis, namely, the streptococcus. The typhoid bacillus as a factor in the production of the disease has been pressed aside. The diminishing incidence of typhoid fever and the apparently increasing incidence of cholecystitis are facts sufficient to push the typhoid bacillus aside even if such a conclusion were not confirmed by laboratory observations.

There is dispute as to the frequency with which the streptococcus is associated. Some workers have found this organism present in 45 per cent of gall bladders examined, and others, notably Wilkie, have found this organism present in over 90 per cent of gall bladders removed. But this dispute is with reference to a detail only and does not alter the fact that the streptococcus is the organism usually present in cholecystitis.

There is dispute as to the route by which the organism reaches the gall bladder. Most of the old theories have been discarded as being irrational. Opinion has narrowed down to about two views. One view is that the organism reaches the gall bladder directly through the circulation in a vast majority, if not all cases. This is the contention of Wilkie and others. Another group holds to the view that the organism reaches the gall bladder by way of the liver from the portal circulation—that the liver first harbors the infection, and that the gall bladder is secondarily involved. The gall bladder may, of course, continue to harbor the infection after the condition in the liver has subsided.

There is little of practical value involved in this dispute in so far as I can see. There is no disputing the fact that there is a free

\*Read before the Middle Tennessee Medical Association, Springfield, May, 1934.



lymphatic connection between the gall bladder and the liver. It is an established fact that the organisms can travel in either direction from the gall bladder to the liver, or from the liver to the gall bladder.

These anatomic and bacteriological facts, together with the known prevalence of the disease, suggest, at least, the possibility of a connection between acute influenza and upper respiratory infections as the primary source from which the organism spreads to reach the liver and the gall bladder. Such an assumption is not far fetched when we think of the prevalence of acute influenza and its complications as being the cause of many chronic foci of infection.

There is no dispute as to the prevalence with which hepatitis is associated with cholecystitis. The facts are it is always present in some degree, both in the acute and in the chronic cases.

Of course some degree of pancreatitis is always associated, and acute pancreatitis practically never occurs except as a complication of cholecystitis.

There is a wide variation of opinion as to the frequency with which other diseases such as heart disease, allergic conditions, hypertension, nephritis, diabetes, etc., are associated. These subjects are under investigation now.

Recently, Robert Termont and Harry M. Zimmerman made a critical review of 1,600 autopsies held in the New Haven Hospital. They found no difference in the frequency of rheumatic and syphilitic heart conditions in persons with cholecystitis, but they found a definite and constant increase in the hypertensive type of heart disease in persons with cholecystitis. These studies did not take into account whether cholecystitis was recognized during life or not.

These autopsy findings correspond with the observations of clinicians to the effect that hypertensive heart disease is associated with cholecystitis in a fair proportion of cases. The frequency of this association varies according to observers.

It is obvious from known facts that a large percentage of cases of cholecystitis are not recognized clinically. It is also true that hypertensive heart disease is not

recognized until it is fairly well advanced. For these reasons the clinical observations as to the relation between the two conditions is open to wide variations. It suffices to say now that there is a definite and constant relationship which cannot be expressed in percentages. We know that it is not a rare occurrence for a patient with chronic indigestion to have a condition diagnosed "acute indigestion" in which death supervenes rather promptly.

The late Dr. Billings has, very properly, received credit for determining the relationship between foci of infection and chronic processes far removed from the focus. Another important fact in this connection is that it was his own experience with himself that led him to make researches on this subject.

He had lumbago and some cardiac disease for some time. In fact, he was frequently disabled by these conditions. He finally became suspicious of his gall bladder, though he had never had any pronounced symptoms of gall bladder disease. Notwithstanding this fact, he had his own gall bladder operated on and was cured. He lived to a ripe old age and died from the effects of an accident.

A sufficient amount of evidence has been brought to light to indicate that the gall bladder is a structure to be held under suspicion as a possible source of infection in any case in which a focus of infection is to be considered as a cause of the trouble.

This statement does not mean that all other possible foci are to be neglected. It does mean that when looking for foci of infection the gall bladder should not be overlooked on account of obvious infection in teeth, tonsils or sinuses.

An increasing number of instances are being reported in which gall bladder disease is associated with demonstrable glycosuria. A derangement in the function of the pancreas as a result of pancreatitis may or may not terminate in diabetes, but the association of cholecystitis and altered sugar metabolism is being observed with increasing frequency.

The importance of the liver in the body economy has been recognized for a long

time, in spite of the fact that no one knows much about its many functions. We also know that the organ is endowed to a remarkable degree with the power of reconstruction after damage. This is a most fortunate physiologic fact. Disease processes which may indirectly affect the functioning of this organ assume an importance quite out of proportion to their immediate effects.

Gall bladder disease and disturbed liver function are found frequently associated in various allergic conditions. The exact proportion of cases in which this is found to be true is not yet determined. It is most important, however, that we bear in mind the fact that a large proportion of persons who have gall bladder infection have none of the usual symptoms attributable to this disease. If mild gall bladder infections were recognized, it might be that the relationship would be very prominent.

Time will not permit of a discussion of even the few known functions of the liver, but the one known function which should be mentioned in this connection is the detoxifying power. That is the power which, when impaired, may permit the development of allergic states, particularly with reference to food allergies.

While laboratory researches have been going on, clinical researches have also been going on and have been very fruitful. The symptomatology of cholecystitis has been rewritten. The one symptom which leads to a suspicion of the gall bladder is the complaint "indigestion." Indigestion which expresses itself in the form of fullness in the upper abdomen or a sense of a lump after eating with belching—dyspepsia, so to speak.

Typical gall bladder colic occurs in a small minority of the cases and in most instances late in the process.

No one knows just how the pain of gall bladder colic is produced. It occurs with and without stones, so the presence of stones is not necessary to the occurrence of an attack of gall bladder colic.

The late Dr. Deaver emphasized this point in reporting over 900 cases operated on. Only about half the cases had stones.

In these about 21 per cent had had attacks of sufficient severity to require morphine. The other half without stones had required morphine in about 19 per cent of the cases. This is supported by a vast majority of clinical observers.

The *indigestion* due to cholecystitis is truly an indigestion, because the function of the stomach is interfered with, both as regards its motility and its secretory function. A vast majority of cases with cholecystitis have diminished, or absent, hydrochloric acid, and an X-ray examination shows diminished motility and a disposition to stasis, particularly in the duodenum.

A peptic ulcer case, of course, shows the opposite picture, namely *overdigestion* with *hyperacidity* and pain when the stomach is empty.

If we wait for an attack of severe gall bladder colic and jaundice to attract our attention to the gall bladder as a seat of disease, we are waiting for late developments. It is like waiting for cavity formation in tuberculosis. Blackford, an internist, emphasized this point many years ago.

At the present time it is generally admitted that 50 per cent of all the patients whose presenting symptom is indigestion have gall bladder disease. The other 50 per cent are due to ulcer, cancer, spastic colon, migraine, and the other conditions which may cause stomach symptoms.

This refinement in symptomatology, together with the X-ray studies of the gall bladder made possible by Graham and Cole, is bringing about the diagnosis of the disease much earlier than was heretofore the case.

The recognition of the disease in its earlier stages has also brought forward the problem of determining, first, whether the early case should be operated or not, and if so, when. Just a little while ago internists and surgeons were agreed that the diagnosis of cholecystitis constituted an indication for operation—that there was no medical treatment which would do the patient any good.

This attitude, doubtless, was correct for



the type of case that was being recognized, because only the more advanced cases were being recognized. All the milder cases were parading under the term "nervous indigestion," "intestinal indigestion," flatulency and what not.

Drs. Blackford, King, and Sherwood, of Seattle, Wash., have conducted the most thorough follow-up study of cases operated and not operated. Their findings are confirmed by Dr. Tate Mason, a surgeon.

Concerning the surgical end results, their findings correspond to those of many other men, that is to say, they have above 80 per cent of cured patients. Of course, on the whole, the cases which were surgically treated were those which had suffered the most, and the group of cases which did not submit to operation were those who suffered less and were therefore less developed and milder cases.

For the moment we will consider their report on 500 unoperated cases of cholecystitis. Of the 500 cases a number of them submitted to operation within six months and were excluded from the studies. All the cases with complications such as common duct obstruction, colongitis, pancreatitis, and associated gastric pathology were excluded. Another group with indefinite symptoms; not confirmed by X-ray studies, were excluded, and some were not heard from. By such steps 300 cases were eliminated. The 200 cases left were separated into three groups, as follows:

(a) Probable cholecystitis giving dyspepsia, without colic or with atypical colic.

(b) Typical gall bladder colic or typical gall bladder dyspepsia or both.

(c) Gall bladder disease proved by X-ray demonstration of stones or stones found at operation for other trouble.

The three types of patients then are classified as probable, typical, and proven. These cases either declined operation or were advised to try out medical measures. They were followed for a period of from five to fifteen years, or an average of nine and one-half years.

Most of these cases were recorded before cholecystograms came into use. The margin of error in diagnosis in these cases is

wider probably than would be the case today. At any rate, from their follow-up study, they arrived at the following conclusions:

1. Thirty-seven per cent of chronic cholecystitis patients have had satisfactory relief over an average period of eight years without operation.

2. Forty-eight per cent of patients with chronic cholecystitis who were not operated on have either come to operation later or should have been operated on later because of continuation of symptoms.

3. Fifteen per cent of patients are dead, but only 2 per cent died directly from gall bladder disease.

This report was read before the section on medicine of the American Medical Association at Milwaukee last year. Dr. Frank Smythies, in discussing this paper, made the following points:

That 23 per cent of patients in middle life who had had biliary tract disease for as long as five years have no hydrochloric acid, and if they have had it for ten years, they not only secrete no hydrochloric acid, but they have provable disturbances in the function of the liver. He also stated that the cases which drain themselves successfully may not develop hypertension, but he emphasized the likelihood of hypertension developing in cases which have improper drainage of the biliary tract.

The medical treatment carried out on these cases consisted of dieting, a saline in the morning as indicated, usually of sodium phosphate, with measures for the correction of constipation. Personally, I favor the use of magnesium sulphate as a saline in small doses. However valuable this work is, it is not at all conclusive.

I have been unable to find in medical literature adequate data bearing on the life expectancy of people who have cholecystitis or who have been operated on for cholecystitis. We all know that individual cases have gone on for an indefinite period. We also know of others who have come to an abrupt ending rather suddenly and unexpectedly.

Some days ago I went to Mr. W. H. McBride, actuary for The National Life and

Accident Insurance Company, in order to find out if actuaries had made any study of such groups of people from an actuarial viewpoint. I received a very positive reply. The Actuarial Association of the United States has accumulated a large amount of information which has been classified in such a way as to permit definite conclusions and to form the basis for definite policies concerning these groups of people from an actuarial viewpoint.

Of course, these data are based upon histories given by the applicants for life insurance, supplemented by information furnished by medical examiners. It is also based upon experience with those in condition good enough to be insurable. They have had no actuarial experience with those who are rejected. So it is necessary for us to bear in mind then that these data and conclusions and policies are based upon experience with a group of cholecystitis patients sufficiently mild to be acceptable as insurance risks.

The policies that are followed by these executives are as follows:

First, an applicant who gives a history of gall bladder colic is not acceptable at all for insurance within one year following the attack. If the attack is not repeated in one year he becomes insurable, but at an extra premium rate sufficient to cover a constant extra mortality of 16 per cent and, in addition to that, an extra premium of \$5.00 per \$1,000 is charged for a period of four years.

If the attack is not repeated for two years there is the constant excess premium to compensate for a 15 per cent extra mortality and an extra premium charge of \$5.00 per year for three years only. And so on up to the sixth year of freedom from attack in which an excess mortality of 10 per cent is provided for in the premium rate and there is no extra charge as in the previous cases.

A second group is composed of those who have had two or more attacks. They are not acceptable at all in the first two years following the last attack. After two years of freedom they are acceptable with an extra premium rate sufficient to cover a 20 per cent extra mortality, and, in addition

thereto, \$7.50 per \$1,000 for a period of four years. The fourth year following an attack there is still an extra premium for 20 per cent excess mortality and a \$7.50 extra premium for a period of three years and so on down.

As regards operated cases, the case that has been operated on is not accepted for insurance for a period of one year following operation. If free of symptoms at the end of one year, an extra premium of \$5.00 is charged for a period of three years, and a premium rate is charged adequate to cover a 15 per cent excess mortality. After the third year free of symptoms they are accepted as standard risks.

Cases with a history of drainage of the gall bladder are treated as applicants with one attack without operation.

Cases with removal of the gall bladder enjoy the more favorable rating.

Cases with removal of the gall bladder without stones are treated just the same as those in which stones are found. There is no distinction in the mortality of those with stones and those without stones.

It is not possible to determine the cause of death in these cases. They have noted, however, an enormous increase in the number of deaths due to intracranial hemorrhage and Bright's disease. Death from Bright's disease is twice as high in this group of cases as in the normal. Cerebral hemorrhage is also twice the normal rate. Some of the studies done some years ago indicate a much increased cardiac death rate in this group of people. *It is interesting to note there is no excess mortality from diabetes.*

These data on terminal events tend to show that there are degenerative changes taking place in the circulatory system in persons who are suffering from mild cholecystitis.

To me, these figures are of tremendous importance. They answer for us questions which patients ask us. One question is, "Will I live long without my gall bladder?" The answer to the question is that if marked degenerative changes have not taken place they become standard life insurance risks without a gall bladder, which indicates they will live out a normal expectancy.

A second question is, "What may I ex-



pect if I decline to be operated on?" From the standpoint of actuarial figures, it depends a great deal on the frequency of the attacks, which is, of course, an index of the activity of the process. The person who has an attack as often as once a year never becomes an acceptable insurance risk.

Next, these facts indicate that the urgency for operation is multiplied by the frequency of attacks.

Lastly, the figures as to terminal events confirm the observation of clinicians to the effect that gall bladder patients do not die from ruptured gall bladders or even from local complications. They rather die from degenerative changes in other vital organs which may develop slowly or rapidly.

Time will not permit a discussion of laboratory procedures which may be carried out. However, none of them are of great value, after a diagnosis is made, except in certain complicated cases, in answering the major question, viz.: should a case of a certain type be operated or treated medically? The answer to this question is still found in clinical observations and experience.

Based on such data, operation is indicated in the following types of cases in the absence, of course, of a definite contra-indication.

*Group 1*—Cases with a history of repeated attacks.

*Group 2*—Cases with a history of a rise of temperature during an attack.

*Group 3*—Cases which show any of the following complications:

(a) Hepatitis as shown by enlargement of the liver during an attack.

(b) Cases with impaired drainage of the biliary tract as shown by any degree of jaundice.

(c) Cases showing a disturbance of sugar metabolism. If pronounced diabetes is present, they should be treated as diabetics.

(d) Any signs of hypertensive heart disease.

*Group 4*—Patients with persistent symptoms of indigestion and a positive X-ray test (Graham Cole), even in the absence of attacks of colic.

A trial of medical treatment apparently is indicated in the following types of cases:

First, cases with digestive symptoms only. That is, indigestion of the type described. If symptoms persist in spite of medical treatment, operation is indicated.

Second, a case following one attack of colic which is not associated with fever and none of the complications mentioned.

Medical treatment should be instituted with the understanding that it is a trial—to test the possibility of escaping operation.

#### BIBLIOGRAPHY

"Association between Diseases of the Gall Bladder and the Heart as Evidenced at Autopsy," Termon and Zimmerman. *Yale Journal of Biology and Medicine*, Number 3, 1930-31.

"Cholecystitis: Study Based on Follow Up After from Five to Fifteen Years of Two Hundred Patients Not Operated On," Blackford, King and Sherwood. *Journal American Medical Association*, Vol. 101, No. 12, Page 910, September, 1933.

*Annals of Surgery*, Vol. 98, No. 3, September, 1933. Gall Bladder Number.

"Relation of Hepatitis to Cholecystitis," John F. Noble. *The American Journal of Pathology*, Vol. 9, No. 4, page 473.

"The Concentrating Activity of Bile in the Gall Bladder Following Restoration from Acute Experimental Cholecystitis," Murphy and Ballman. *Surgical Clinics of North America*, Vol. 11, page 917.

"Neglected Cholecystitis," J. Earl Else. *Surgical Clinics of North America*, Vol. 11, page 957. Experimental work.

"Perforation of the Gall Bladder," Judd and Phillips. *Annals of Surgery*, Vol. 98, page 359, September, 1933.

Sixty-one cases of rupture or gangrene in ten years in Mayo clinic.

Fifty-six had stones in the gall bladder.

Nine had stones in the common duct.

"New Points of View," Truiss and Green. *Journal of the American Medical Association*, 101-1841.

"Indications for Surgery of Gall Bladder," Monroe. *Canadian Medical Journal*, Vol. 25, page 276, 1931.

"Late Results in Medical and Surgical Treatment of Gall Bladder Disease," Dr. Tate Mason. *Annals of Surgery*, Vol. 94, page 786.

"Value of Early Operation for Acute," Graham. *Annals of Surgery*, Vol. 93, page 1152.

"Surgical Aspects of Gall Bladder Disease," Harold E. Sontee. *Annals of Surgery*, Vol. 93, page 1156.

"The Incidence of Gallstones and Gall Bladder Disease," Curtis Crump. *Surgery, Gynecology and Obstetrics*, Vol. 53, page 447.

"Results of Gall Bladder Surgery," Dwyer and Dowling. *Journal of the American Medical Association*, Vol. 98, page 722.

## VOMITING IN YOUNG BABIES\*

O. H. WILSON, M.D., Nashville

**B**ABIES VOMIT easily because the sphincter muscular fibers at the oesophageal end of the stomach are undeveloped, and because the long axis of the organ is more vertical than horizontal.

Acute vomiting in babies is conservative, and should be encouraged. It is usually due to one or two causes. First, acute infections when the digestive function, weakened by illness, is not able to take care of ordinary food, and nature rids the stomach of its burden. Secondly, indigestible food, much better to be vomited than to pass undigested into the more vulnerable intestines. When a child takes a bottle of sour milk or pilfers an apple core from the garbage can, think of ipecac, not castor oil.

Chronic vomiting in young babies may be due to one of many obscure causes, requiring continuous, careful, combined observation of mother and doctor to determine its origin. However, if the baby is gaining and sleeping well it may be ignored.

I will enumerate and discuss thirteen causes of chronic vomiting.

1. Excessive quantity at a feeding. The old adage, "healthy babies vomit," meant that they nursed more than they needed and overflowed, a natural safety valve. Babies vary greatly in their food capacity and appetite. Some month-old babies take two ounces, others six or eight. Up to a very few years ago we thought we knew how much to feed a month-old baby. We knew that his stomach capacity was not over three ounces, and thought it would be dangerous to give more. Every authority on feeding advised about three ounces. After carefully observing many thriving nursing babies, and finding that even at two weeks of age six or even eight ounces were frequently taken at a nursing without harmful results, and that unless he got the six or eight ounces symptoms of so-

called colic or gas developed, I have concluded that a baby knows his capacity better than I do, and advise enough to satisfy him at each interval. If he gets too much, it will overflow, and no harm is done. I feel that I should take every opportunity for publicly apologizing to the poor little fellows scientifically starved under the impression that gastric measurements determined the quantity of a feeding.

2. The second cause is tight bands. Many a mother thinks her baby will drop to pieces and invariably pins him up as tight as she can. A bellyband should be regarded as a retainer for the cord dressing. As soon as possible discard it. This is my practice even in the face of such eminent authority as Dr. John Morse, who thinks girls should wear bellybands until they are married, and boys until they are old enough to vote. Put a tight bellyband on an empty baby and feed him and note his reaction.

3. Feeding too often. Some babies will vomit two ounces if fed every two hours, but will retain four ounces fed every four hours.

4. Too rapid feeding may have the effect of bolting food and producing nausea.

5. Disturbing too soon after feeding. When baby is inverted just after nursing the milk simply runs out. Don't do it in your Sunday best.

6. Excess of cream, that is, more than the baby can digest, will produce vomiting, which is usually associated with white or light-colored bowel movements.

7. Excessive sugar may cause vomiting and it is usually associated with chafing stools.

8. Hard proteid curds of cow's milk may cause vomiting, but boiling softens the curds and usually corrects this.

9. Constipation and flatulency may leave little room for the feeding.

10. Gas bubble. It can be easily demonstrated that nursing or bottle-fed babies frequently swallow large amounts of air with the food. The usual direction is to

\*Read before the Middle Tennessee Medical Association, November 10, 1934.



hold the baby up for belching. That invariably wakes him up. I prefer to lay him on his right side so that the bubble will come up to the swallow end of the stomach and be expelled as a belch rather than to bring all the milk up before it.

11. Increased cerebral pressure from intracranial tumors or inflammation may irritate the vomiting center and so cause chronic vomiting.

12. Allergy is certainly a cause, though rather a rare one, for vomiting. It may be due to sensitiveness to some food taken by the mother or sensitiveness to cow's milk. Try the milk of some other mother or goat's milk, or, to prove it out, feed on sweetened water or barley water for twenty-four hours.

13. Obstructive vomiting. An obstruction may exist in the alimentary canal, located anywhere from the mouth to the anus. Strange to say, I have known two babies to be born at hospitals and go home before the imperforate anus was recognized. This is explained by the day and night nurses passing the buck to each other.

The usual location of the obstruction, however, is at the pylorus, due to congenital hypertrophic pyloric stenosis. The history of such a case is this, a fine boy (80 per cent are in the males), often the first son of solicitous neurotic parents, is born normally, lives a normal thriving life until he is one to three weeks old, then begins to vomit with increasing frequency and intensity; they decide it must be the breast milk and wean him. Other foods are tried with no success, and finally he is brought to you a starving dehydrated baby weighing less than he did at birth.

*Pathology*—The circular layer of muscular fiber at the pylorus, normally about one-twentieth of an inch in thickness, is increased until it is nearly one-fourth of an inch in thickness, forming a hard cartilaginous tumor about the size of a peanut. The mucous membrane is thickened and thrown into folds which finally complete the obstruction. There are all grades of obstruction, some complete or so nearly so that only a fine probe can be pushed through, others allowing a moderate amount

of food to pass. The cause is unknown, though many theories have been offered. Obviously the muscular thickness must be congenital. In fact, it has been found in the fetus, the folds in the mucosa evidently being the final obstructing element.

There are five cardinal symptoms and signs, or, as I prefer to state, four and a half.

The first is vomiting. Beginning not at birth, but usually from one to three weeks, rarely earlier or later, though cases have been reported as late as the second year. At first it seems the usual baby vomiting, then becomes projectile, throwing the milk out of the crib on to the floor. There is no nausea, but, on the other hand, intense thirst and hunger. There is no bile in the vomitus.

The second is gastric retention. The stomach should normally empty itself at least in two hours. In this condition we frequently find food retained three or four hours. Sometimes a baby will retain three or four feedings, overdistending the stomach and then vomit the huge quantity. This sign can be demonstrated by X-ray or by withdrawing the stomach content with a catheter.

Third. Starvation symptoms. There is usually constipation, but may have a diarrhea with starvation stools. That is only mucus and bile. There is anuria, dehydration, rapid loss of weight, sunken fontanelle, and any or all of the symptoms of starvation.

Fourth. Visible peristalsis. Watching the baby carefully you will find that the stomach begins to contract and try to force its contents past the obstruction. This effort is associated usually with pain and followed by vomiting. Watching the abdomen closely you can see a ball about the size of a golf ball beginning under the border of the ribs on the left, making its way slowly across the abdomen, and disappearing about the site of the pylorus. This is not always present, but watch long enough and you can see it. It may be provoked by giving water or by stroking the upper abdomen with a wet cloth.

Fifth. Tumor. About half way between

the ensiform cartilage and the navel a little to the right, authors say you should feel a tumor in nine out of ten cases. I either am not a good feeler or haven't a vivid imagination, because I have only on one or two occasions been able to elicit this sign, and when you consider the size and its deep location, it seems to me a pardonable mistake. At any rate, it is not necessary to complete your diagnosis, so don't be discouraged.

#### DIFFERENTIAL DIAGNOSIS

Pylorospasm or simple spasm of the pyloric muscular coat may cause the same symptoms, but they are intermittent and relieved by treatment.

Indigestion may cause vomiting, but it should vary with the food. Hunger is absent. There is no gastric retention and there may be bile in the vomitus.

Neonate vomiting begins on the first day, may be due to swallowing amniotic fluids, or very frequently it is associated with birth injury.

*Obstructive vomiting*—Remember that an obstruction may occur at any part of the alimentary canal from the pharynx to the anus. The symptoms are earlier and there is usually bile in the vomitus if the obstruction is below the pylorus.

*Prognosis*—Thomson says the baby will get well if he lives long enough (he is Scotch, not Irish). In other words, if you can keep him alive, the opening will gradually increase. That means if you can get enough

food through the partial obstruction to prevent loss of weight you can hope with medical treatment to get him to the point where he will gradually gain, though it is a question whether these recoveries will not have subsequent chronic digestive disturbances.

*The treatment*—Atropine should be given freely, up to the point of reddening the skin. Begin with 1/1000 of a grain every two hours and watch effects. Of course, it is too much to hope atropine will have any effect upon the hardened pyloric muscle, but may soften the convulsive tendency of the stomach itself, and so let a little food through the constricted opening.

Gastric lavage once or twice daily seems to have a good effect.

Opiates may limit the muscular spasm.

The feedings should be thick gruels mixed with skim milk — in small quantities frequently repeated. Of course, human milk is best if accessible.

If the baby is losing rapidly, correct the dehydration and advise surgical relief.

The chances of success depend upon the condition of the child. Strange to say, the operations on younger babies under three weeks show a better mortality rate than in those over three weeks. With a competent surgeon accustomed to handling such cases, the chances for success should be fully 90 per cent. Never operate on a dehydrated child. Correct this mechanically by intravenous, intraperitoneal, or subcutaneous injections.

Plan to Attend the 102nd Annual Meeting

## TENNESSEE STATE MEDICAL ASSOCIATION

April 9, 10, 11

Headquarters—NOEL HOTEL—Nashville



## A DISCUSSION OF SOME OF THE MORE COMMON SKIN DISEASES\*

C. M. HAMILTON, M.D., Nashville

THIS DISCUSSION is a brief resume of a few of the more prevalent skin diseases, emphasizing the essential diagnostic signs and practical suggestions for treatment.

*Scabies* — Scabies is usually diagnosed with ease, but it may be almost impossible to recognize. In adults who bathe frequently, the lesions are so scarce and so indistinct that a diagnosis is made difficult. Sometimes, the lesions are masked by secondary infections that are misleading.

The scabies lesion is a furrow in the skin. The acarid burrows its way beneath the outer layer of the skin, leaving a zigzag line that is very characteristic. The average case presents various types of lesions; excoriations, crusts, vesicles, pustules, and furuncles. The distribution is one of the most significant features. The sites of involvement are flexor surfaces of wrists, webs of fingers, elbows, pre- and post-axillary folds, waist, low gluteal regions, male genitals, female breasts, inner sides of thighs, and popliteal spaces. Small children may have lesions on palms. Infants frequently have eruption on feet and may have involvement of face and scalp. The most infallible signs of scabies are vesicles or pustules along the creases of a child's palm and papules on the penis and scrotum. Gluteal furunculosis should be regarded with suspicion.

Itching at night with comparative freedom during the day is very suggestive of scabies. Pruritic eruption in more than one member of a family is also a valuable sign.

The treatment consists of eradication of the parasites from the patient, from the underclothing, and from the bed linen. There is no better remedy than the judicious use of sulphur ointment, employing ten per cent in adults and weaker preparations in children. The applications of sulphur ointment for three successive nights should be preceded by a cleansing bath and should

be followed by a bath the fourth night. The underclothing and bed linen should be changed the fourth night and dipped in boiling water. Sulphur is very irritating to the skin and should be used in small amounts rubbed in thoroughly. Soothing ointments, oils, and lotions may be used for a few days to counteract the irritating effect of the sulphur. Fine, scaly eruption on the sides of neck, trunk, and thighs the second week is usually a sulphur dermatitis. Should active scabies lesions be found the second week it will be necessary to repeat the procedure.

*Impetigo contagiosa* — Impetigo is an acute infection that may occur on any part of the body, including mucous membranes. It is found most often on exposed surfaces. It appears as a clear blister that soon becomes pustular and ruptures, leaving a superficial yellow crust. The crust seems to be glued to the surface. Removal of the crust leaves a reddish, oozing, circular area without ulceration or invasion into skin. Impetigo may be secondary to scabies, eczema, dermatitis, or other eruptions. It is known to the laity as dew poison or summer sores.

Ammoniated mercury ointment, three to ten per cent, is an effective remedy. Complete removal of all crusts is one of the most important steps in the treatment. This can be done by using warm, soapy water. The ointment should be rubbed into the base of the lesions after the crusts have been removed. Bichloride of mercury solution, sponged to the surrounding area, can be used as a prophylactic measure. When only a few lesions are present the crusts may be removed with forceps, and an application of silver nitrate, five per cent, will be very effective. In extensive involvement dressings saturated with bichloride of mercury solution 1:3000 give good results. X-ray therapy is helpful in resistant cases.

*Ringworm* — The term ringworm is a misnomer. It gives the impression that the organism is an animal parasite and that the

\*Read before the Middle Tennessee Medical Association, Lawrenceburg, November 8, 9, 1934.

eruption is ring-like. Both are misleading. The parasite is a fungus, vegetative in nature, requiring warmth and moisture for subsistence. The chief lesion is a blister. A small percentage of cases occur in circles, but they are rare. Most of the circular eruptions are pityriasis rosea, psoriasis, seborrhea, and syphilis.

As ringworm is vegetative requiring moisture, it thrives on skin abundantly supplied with sweat glands. The feet, hands, groin, axillae, and inframammary regions are favorite locations. The young, robust, freely perspiring athletic individual is more subject to ringworm infection than a person in poor physical condition. It is also more prevalent in the better class of people. Practically all athletes and most college students harbor ringworm infection. It often attacks people who attend health clubs, gymnasias, and swimming pools. The organisms grow prolifically on wet soggy mats, floors to shower rooms, and sweaty athletic goods.

The treatment of ringworm of the feet and hands is a problem that will tax the ingenuity of the most skillful observer. Where other locations are involved, the response is much more satisfactory. Salicylic acid is used more often than any other drug. Combined with benzoid acid into a salve known as Whitfield ointment, it makes a popular remedy which is about as good as any. Some advocate Whitfield ointment or its modification at night and a dusting powder every morning. The ointment has an antiparasitic action and also eliminates some of the parasites by its peeling effect. The powder keeps down the moisture and hinders the growth of the fungi. Iodine is a very good antiparasiticide. It may be diluted 1:3 with alcohol, benzine, or spirits of camphor. It is used frequently in conjunction with Whitfield ointment. Additional X-ray therapy is worth while. Secondary pyogenic infection should be treated with wet dressings before attacking the ringworm infection.

*Dermatitis*—With the possible exception of ringworm, dermatitis is probably the most frequent skin disease in this section of the country. Scientific development with

industrial use of chemicals is partly responsible for the widespread condition. The free use of cosmetics also contributes to its increase. No attempt will be made to differentiate dermatitis from eczema, since they are so closely linked together and frequently cannot be distinguished.

Poison ivy and poison oak cause a severe dermatitis with blister formation which frequently weeps profusely. It usually appears on exposed surfaces. Some of the blisters are arranged in lines resulting from the stroke of a plant or from scratching. Diffuse erythematous eruptions on face, neck, and hands are usually due to chemical contacts, but may result from flowers or other plants. Eruptions confined to the face and neck may be due to hair dye, waving fluid, hair tonic, cosmetics, or soap.

The hand eruptions are seen frequently and are difficult problems. Involvements of the backs of the hands are often due to contacts in occupation. It is worse in cold weather. Ringworm is worse in warm weather and prevails on the palms. Milkmen, printers, filling station employees, shoemakers, rayon workers, photographers, painters, gardeners, nurses, dentists, and physicians are subject to hand eruption resulting from irritating contacts.

The treatment is twofold. Elimination of the cause and soothing protective applications are essential. If the medical profession will make up its mind that there is no such condition as an eruption due to "too much acid" and that most eruptions attributed to overacidity are the result of irritating contacts either vegetable or chemical, a more satisfactory plan of treatment will ensue. It is well to remember that the skin is already damaged and that strong applications will only increase the damage. For oozing, vesicular eruptions, wet dressings give the best results. Powders should never be applied to raw surfaces. Powders form a crust which soon harbors infection. For dry, scaly eruptions bland oils and ointments are preferable. Strong, stimulating ointments should be used in thick patches of eczema only. Alcoholic lotions are irritating and should be used cautiously in acute inflammatory skin conditions.



*General rules for treatment*—For pustular eruptions as impetigo, follicular infections of the scalp and other hairy areas, pustular eczema, and furunculosis, use measures that will favor drainage. Frequent removal of crusts followed by the application of ammoniated mercury ointments gives good results. Oozy, weeping eruptions require wet dressings. Saturated solution of boric acid is very satisfactory. Potassium permanganate solution 1:5000, hypertonic salt solution, or aluminum acetate solution will do well. Avoid the use of paints like mercurochrome that seal up drainage points. Strong antiseptics that devitalize the tissue do more harm than good.

Soap and water are beneficial in in-

fectious eruptions, but harmful in cases of dermatitis and other dry eruptions in which there is a lack of oil. Warm water soaks are helpful in ringworm of the feet and hands, but detrimental in eczema of the same regions. Soap and water should be used freely in oily conditions of the scalp and in acne with excessive oil in the skin of the face. A soap bath may help to abort a dermatitis from poison oak if used immediately after exposure, but is injurious to a well-developed dermatitis.

X-ray therapy relieves itching, stimulates the growth of epithelial cells, causes atrophy of oil glands, and is helpful in skin infections. It should be used sparingly in dry ichthyotic conditions where a deficiency in oil and sweat glands is evident.

Attend the

102nd Annual Meeting

TENNESSEE STATE MEDICAL  
ASSOCIATION

April 9, 10, 11

Nashville

## CONSERVATION OF MOTHERHOOD\*

---

J. C. AYRES, M.D., F.A.C.S., Memphis

---

THE HAND that rocks the cradle rules the world, but if that hand is weakened by disease or stilled by death, the devils of anarchy are loosed upon the race.

In all life, from the highest to the lowest, motherhood is the most important factor. The goal of individual existence is the procreation of kind, and an essential part of the procreative instinct is the urge of the race to care for and protect its mothers. We see this instinct highly developed in all of the insects and birds, some of the fishes, and nearly all of the mammals. One of the gauges of evolutionary status is the degree of this care. And so for man the highest criterion of any civilization is the reverence in which its mothers are held and the intelligence and energy exerted toward their happiness and welfare.

The problem of the Conservation of Motherhood begins with the mental and physical training of the young girl, and here we find the most important as well as the most difficult part of our subject, but it is a responsibility of our profession and we should work diligently towards its solution.

I am no believer in eugenic marriage, but I do believe that a thorough physical examination should be made of both parties to the marriage contract, and if a serious defect is found it should, if possible, be corrected before the marriage is consummated. If correction is impossible, the other party should be apprised of the condition and be given the privilege of breaking off the engagement.

Birth control, in the larger aspects, embraces not only the use of contraceptives and sterilization, but the whole subject of abortion whether spontaneous, therapeutic, or criminal. It includes the question as to whether the state should encourage fecundity in order that she may have more

soldiers to send to war, or whether the church should enjoin its members to be fruitful and multiply in order that there may be more souls to save—or lose.

The eugenicists have tried, and failed, to standardize humanity by selected mating. Ancient civilizations attempted to elevate the race by the simple process of culling out the unfit. It is fortunate for humanity that they did not eliminate Homer on account of his blindness or Saul of Tarsus on account of his “thorn in the flesh.”

The laws enacted by some European countries, as well as by some American states, directing the sterilization of the unfit is better, for it eliminates from the unworthy the possibility of parenthood.

The desires of many fine women for babies are met by an increasing knowledge of the causes of sterility, and their correction. There is no finer work than to make kinetic the potential motherhood of this class of patients.

Every female child born into the world is a potential mother and every girl should have her life so molded that she may fulfill her God-given mission to such a degree that men and angels shall call her blessed. Pediatricians are doing a wonderful work in teaching mothers child hygiene. Gynecologists would do well to follow their example, and not leave the sex instruction of the adolescent girl in its present haphazard state. This phase of her education can best be handled by the family physician either through the mother or directly to the girl herself.

Every normal woman has a right to attain motherhood and any man who knowingly brings into the nuptial relation any deformity or disease that will jeopardize that right commits an actual crime. However, it is the duty of the parents of the prospective bride, in so far as they are able, with the help of their family physician, to protect their daughter in this matter. On the other hand, any woman who

---

\*Read before the Shelby County Medical Society, Memphis.



marries a man without being willing to bear him children does him a great wrong and herself a greater one. A childless marriage is hardly ever a happy or a successful one.

Through the ages childlessness has been the curse of womankind. In ancient times a woman known to be barren was considered disgraced, but in late years we have learned that in at least 50 per cent of the cases the man is the responsible party. At the present time, the desire of many fine women for babies is being met by an increasing knowledge of the causes of and the treatment for sterility. Nothing gives the physician more satisfaction than to be able to remove this barrier.

The menace of criminal abortion has increased by leaps and bounds within recent years—some authors claiming that at least 25 per cent of the reported maternal deaths are due to that cause. The new wave of contraception information, and misinformation, that has deluged the country during the last two years promises to reduce the number of criminal abortions, and while this will save the lives of many women, it will also do a great deal of harm.

The original intent of the birth control investigations was to protect women against the dangers of childbirth incident to certain diseased conditions. It was the original purpose to keep the whole matter in the hands of the medical profession, but the temptation of large demand and larger profits was too much; so, in spite of state

and federal laws against advertising contraception paraphernalia and concoctions the country has been literally flooded with literature advertising "hygienic protective devices," to be sold for "medical use only." There are said to be over 300 firms advertising and selling such materials to the laity. As commonly used these appliances are neither "hygienic" nor "protective."

Both space and inclination forbid my going further into the questions of abortions and contraceptives than to restate the ethical stand of our profession in regard to them. An abortion should be done only when the mother's life depends upon it—not to destroy a life, but to save the more precious of the two; and contraceptives should be used for no other purpose than to conserve motherhood.

As this paper has taken more of a sociological than a medical trend, I shall not comment upon the necessity of prenatal and postnatal care except to say, that as essential as they are, they are no more important as factors for maternal conservation than the care of the mother after she has passed the childbearing period. Child rearing is as sacred a trust as childbearing.

The responsibility for the conservation of motherhood is ours. Let our approach to the subject be neither fearsome nor meddlesome, but with due reverence and thoughtfulness. We cannot rock the cradle to rule the world so let us not rock the boat to ruin it.

# THE JOURNAL

OF THE

## TENNESSEE STATE MEDICAL ASSOCIATION

Devoted to the Interests of the Medical Profession of Tennessee  
Office of Publication, 510 Doctors Bldg., Nashville, Tenn.

*Acceptance for mailing at special rate of postage provided for  
in Section 1103, Act of October 3, 1917,  
authorized July 15, 1932.*

H. H. SHOULDERS, M.D., Editor and Secretary

FEBRUARY, 1935

### EDITORIAL

#### THE NEW STATE BOARD OF HEALTH

The bill sponsored by the medical profession providing for the creation of a State Board of Health has been passed by the Legislature and signed by the Governor.

The personnel of the Council of Health appointed last year has been appointed as a Board of Health under the law just passed. Dr. John M. Lee is chairman of the board. It is empowered by law to make the policies of the Department of Health.

Dr. E. L. Bishop resigned as Commissioner of Health. His successor has not been named at this writing. At any rate, a Board of Health has been created and clothed with authority. This board deserves the sympathetic cooperation of the entire medical profession in its efforts to formulate sound public health policies and to put them into execution.

Governor McAlister and Dr. E. W. Cocke, Commissioner of Institutions, are deserving of commendation for their activities in securing the passage of this meritorious piece of legislation.

#### AN IMPENDING CRISIS IN THE PRACTICE OF MEDICINE IN AMERICA

At the request of the Board of Trustees of the American Medical Association, the House of Delegates is called to meet in Chicago, February 15, 1935, for the purpose of considering problems which have arisen in connection with social insurance legislation.

A weighty burden rests on the shoulders

of the leaders of medicine in America at this moment. Medical statesmanship of an unusual quality is required to meet the problems.

We doctors have been giving some thought to the subject, "State Medicine," for many years now. We have learned enough about it to know that it never has accomplished the ends nor possessed the virtues that its proponents claim for it. At the same time, the types of people who are the proponents of such measures have the advantage at the present time of propaganda facilities which exceed any that have ever existed before.

In order to promote a clearness and directness in thinking on this subject it is necessary for one to carry a definite conception of what "state medicine" is, and of what "insurance" is, and then again of what "social insurance" is.

State medicine is a system of practice in which the state furnishes to the patient medical services. That is to say, the state finances the service. The patient accepts whatever the state offers.

The business of insurance has become one of the larger businesses of the United States. It is said there are more policyholders in the United States than in all the rest of the world combined. Certainly from the standpoint of volume, there is a greater volume of insurance in force in the United States than in all the rest of the world combined.

It is obvious, therefore, that the principle of insurance as a means of securing financial protection and as a means of providing estate for dependents is a well-established principle.

The United States government applied the insurance principle in providing benefits, in advance, for soldiers during the World War. The benefits were twofold. First, a death benefit. Second, a disability benefit. Both were in cash. The latter was effective only in event of permanent and total disability.

It is necessary to draw a sharp distinc-



tion between insurance as ordinarily understood and the social insurance usually sponsored by the government.

In the case of private insurance, a private citizen buys his contract. He pays for it according to contract. He receives benefits according to the provisions of the contract or policy. If it is a disability policy it provides for the payment of certain amounts in cash to the beneficiary and the beneficiary in turn spends the money in any way he chooses. He may use it to pay a hospital bill. He may use it to pay his doctors' bills. He may use it to meet his other personal expenses. At any rate, the money paid as benefits belongs to the policyholder and he pays it out in any manner he chooses. This same general principle applies in the case of government insurance issued to soldiers and veterans. These principles *do not apply in the case of social insurance*. Under social insurance the benefits, as a rule, are in the form of *service and cash*. The policyholder receives a stipulated sum in cash in the event of disability, etc., but the services are supplied and dictated by the governmental administrative agency.

In the case of a bill now pending before the United States Congress known as the Wagner Bill, the matter of social insurance per se is not touched upon except in so far as it affects old age pensions, unemployment insurance, certain phases of child welfare, public health, etc.

The establishment of a system of social insurance is recommended by the Committee on Social Security appointed by the President. The detailed provisions of such a measure are under discussion.

The National Association for Social Security has prepared a bill to be introduced into the various states, and according to statements in the report of the Committee on Social Security it is their idea that the administration of social security acts should be by state administrators, and supported in part by the federal government, providing the plans conform to the ideas of the national board.

It appears that we are now directly concerned with legislation prepared by the

National Association for Social Security and not by legislation actually sponsored by the committee appointed by the President.

This bill has been discussed in these pages heretofore. It conforms to the usual types of such measures. That is to say, two benefits in the main are provided. First, a cash benefit. Second, medical and hospital services. The cash benefit is paid to the beneficiary in case of total disability. The medical benefit is administered entirely by boards.

It is a bit strange that persons who sponsor such measures always seek an enormous amount of power. They show no disposition to control the disposition of the cash benefits paid the beneficiary. They show a disposition, however, to dominate completely both the patients and the doctors in connection with the matter of medical services.

To our way of thinking, the man has not yet been born who possesses the qualities required to administer such benefits.

If the ideal of security can be accomplished by money it certainly would be possible to pay the medical benefits in cash, in addition to the other cash benefits, and allow the beneficiary to spend it for medical services. Such a provision, in our opinion, would be in complete harmony with our democratic principles. It would be in line with the provisions in the disability insurance policies already in force in this country. It certainly would reduce administrative cost to a minimum. It would prevent the formation of an enormous political organization whose powers would be exerted over sick persons and over every person or agency who renders medical or hospital services. Such a political set-up certainly would extend its powers "by degrees" until America is completely communistic.

It might be argued that doctors and patients might enter into collusion to defraud the government. The answer to such an argument is found in the fact that there are precious few instances of such collusion in the experience of insurance companies who have been doing business in the United States for many years with literally millions of such policies in force.

These few statements will suffice to show

that the issue of liberty involved in such legislation is a concern of the patients and the general public to the same extent that they are the concern of doctors.

Doctors have opposed such legislation because they are more familiar with its consequences. Lay people in other countries have awakened to the consequences after it was too late. If such legislation must come in this country the liberties of the patients must be preserved.

## WOMAN'S AUXILIARY

*President*-----Mrs. Willis Campbell  
Memphis

*President-Elect*-----Mrs. R. G. Reaves  
Knoxville

*Press and Publicity*---Mrs. W. W. Wilkerson, Jr.  
Nashville

### REPORTS OF LOCAL AUXILIARIES

Shelby County—Mrs. Percy W. Toombs, President.

The last meeting for the year 1934 was held on Wednesday, January 16, 1935, at the University of Tennessee. A report of the Musical Tea, which was given by the auxiliary at the home of Mrs. Willis Campbell, entertaining the visiting wives of doctors attending the recent meeting in Memphis of the Radiological Society, was received. The following officers were elected for the year 1935:

President, Mrs. W. S. Lawrence.

First Vice-President, Mrs. J. W. Bodley.

Second Vice-President, Mrs. T. P. Nash, Jr.

Third Vice-President, Mrs. J. B. McElroy.

Fourth Vice-President, Mrs. W. L. Williamson.

Recording Secretary, Mrs. W. C. Chaney.

Corresponding Secretary, Mrs. Chester Allen.

Treasurer, Mrs. W. S. Lombard.

Historian, Mrs. A. F. Cooper.

Parliamentarian, Mrs. A. G. Jacobs.

Board of Directors:

Mrs. W. T. Black.

Mrs. W. Likely Simpson.

Mrs. A. H. Meyer.

Mrs. Percy Toombs.

Plans were made for the President's Day

luncheon which will be held on February 20 at the Hotel Peabody.

Davidson County—Mrs. B. F. Byrd, President.

The auxiliary met on January 4 at the Y. W. C. A. Due to the absence of Mrs. Byrd, Mrs. Oscar Nelson, the vice-president, presided. Mrs. Elkin Rippey, chairman of Hygeia, was in charge of the program. The speaker for the day was Dr. W. W. Wilkerson, Jr., who chose as his subject, "What Is Sinus Disease?" the subject having been taken from an article in a recent issue of Hygeia. In an instructive and entertaining talk, Dr. Wilkerson pleased his audience with his subject matter, emphasizing particularly the structure of the sinuses, the various types of infection attacking them, and the remedial procedures which may be employed. Following the talk a delightful musical program was given by Mrs. D. J. Johns, vocalist, and Mrs. Bruce P'Pool, pianist. Plans for a valentine dinner to be held on February 8 were announced by Mrs. Carl McMurray.

## NEWS NOTES AND COMMENTS

The fourth series of the Abraham Flexner Lectures at the Vanderbilt University School of Medicine is being given by Dr. Gunnar Nystrom, a distinguished Swedish surgeon, and professor of surgery at the University of Upsala, Sweden.

February 6—Embolism of the Arteries of the Extremities.

February 8—Pulmonary Embolism.

February 11—Swedish Experiences in Combating Appendicitis.

February 18—Cytology of Joint Exudates as an Aid to Diagnosis.

February 20—The Treatment of Medical Fractures of the Collum Femoris.

William Litterer, A.M., Ph.C., M.D., announces the removal of his office from Tennessee Department of Public Health to Litterer Laboratories, 532 Doctors' Building, Nashville. Practice limited to clinical pathology and bacteriology.



Plans are being made for the one hundred second annual meeting of the State Association. The local committee on arrangements has designated the Noel Hotel as convention headquarters. Commercial exhibitors are reserving space. The Program Committee is at work. Societies from all over the state are sending delegate credentials. Every plan is being made for a great meeting. It is not too early for you to reserve the dates, April 9, 10, 11, for your trip to Nashville.

## MEDICAL SOCIETIES

### *Blount County:*

Our program of the Blount County Society has been received. The following papers have been presented:

January 3—"Preventability of Cancer," by Dr. E. W. Griffin.

January 10—"Diagnosis and Treatment of Tumors of Breast," by Dr. J. E. Carson. Discussion opened by Dr. C. C. Vincant.

January 17—"Management of Unconscious Patient," by Dr. E. H. Lowe. Discussion opened by Dr. J. A. McCulloch.

January 24—"The Doctor in Court," by Mr. Homer A. Goddard, Attorney at Law.

January 31—"Cause and Treatment of Hemorrhoids," by Dr. F. A. Zoller. Discussion opened by Dr. J. W. Norton.

"Food Poisoning," by Dr. J. E. Hall. Discussion opened by Dr. A. L. Jones.

February 7—"Diagnosis and Treatment of Cerebral Hemorrhage," by Dr. R. L. Hyder. Discussion opened by Dr. C. F. Crowder.

February 14—"Management of Foreign Bodies in Air Passages," by Dr. K. A. Bryant. Discussion opened by Dr. G. W. Burchfield.

For the coming month the scheduled speakers and subjects are listed below. Few other small county societies attempt weekly meetings and few societies anywhere have better programs.

February 21—"Intracranial Hemorrhage in New Born," by Dr. C. F. Crowder. Discussion to be opened by Dr. R. L. Hyder.

February 28—"Treatment of Fractures

of Olecranon," by Dr. W. B. Lovingood. Discussion to be opened by Dr. F. A. Zoller.

March 7—"Thrombo Angiitis Obliterans as a General Vascular Disease," by Dr. G. D. Lequire. Discussion to be opened by Dr. D. R. Thomas.

March 14—"Rupture of Uterus, Causes and Diagnosis," by Dr. B. E. DeLozier. Discussion to be opened by Dr. L. C. Olin.

### *Davidson County:*

January 15—Adoption of the revised constitution and by-laws. Nominations for the Board of Directors will be in order.

A motion picture, "Fertilization of the Ovum," was presented. Film furnished by Mead Johnson Company.

January 29—"The Relation of Trauma to Abortion and Precipitate Delivery," by Dr. L. E. Burch. Discussion opened by Dr. W. B. Anderson and Dr. Paul Warner.

February 5—"Acute Hematogenous Osteomyelitis," by Dr. R. L. Linney. Discussion opened by Dr. S. W. Ballard.

### *Dyer, Lake, and Crockett Counties:*

Regular monthly meeting of Dyer, Lake, and Crockett County Medical Society called to order February 6, 1935.

Letter from Secretary Shoulders read to society. The next state meeting to be held in Nashville April 9, 10, 11, 1935. Request made that members desiring to appear on the program promptly turn in titles of papers to local secretary. Dr. Shoulders promises a good meeting.

A bill sponsored by the State Nurse's Association and now pending legislation discussed at length. Motion carried that this society go on record as not favoring the bill. The secretary to so instruct representatives in the House and Senate.

### Scientific Program:

"Intestinal Obstruction" (case report)—Dr. J. P. Baird, Dyersburg.

"Placenta Previa" (case report)—Dr. N. S. Walker, Dyersburg.

"Head Injuries"—Dr. Robert Latimer, Union City.

"Syphilis"—Dr. F. L. Roberts, Trenton. Thirty members present.

C. L. DENTON, *Secretary.*

*Five-County Medical Society:*

The January meeting was held at Savannah on the twenty-ninth. The following papers were read:

"Cancer of the Rectum," by Dr. John L. Jelks, Memphis. Discussion opened by Dr. R. J. DeFord.

"Fractures," by Dr. Henry G. Hill, Memphis. Discussion opened by Dr. J. H. Tilley, Lawrenceburg.

"Presidential Address," by Dr. G. N. Springer, Hohenwald.

"Some Diagnostic Problems in Border Line Goiter Cases," by Dr. J. Augustus Crisler, Memphis. Discussion opened by Dr. F. H. Norman.

*Giles County:*

The Giles County Medical Society met in regular session on January 31. Had a dandy meeting with fourteen members present. Dr. R. E. Warren, vice-president, gave us a treat to a swell banquet. We had as our guests Drs. J. C. Pennington and R. W. Grizzard, of Nashville; Mr. Sterling, of the American Optical Company, Nashville; and Mr. Bauman, of the Nashville Supply Company, Nashville.

Dr. J. C. Pennington gave us a good talk on the present-day treatment of "prostatic disease."

T. F. BOOTH, *Secretary*.

*Henry County:*

The Henry County Medical Society held the first meeting of 1935 at 3 P.M., January 15.

Dr. A. A. Oliver read a short paper entitled, "Shall We Practice Ethical Medicine or Shall We Meet Competition and Abolish a Fee Schedule?"

Much discussion about "Relief Medicine," or TERA service was before the meeting.

*Knox County:*

On January 15, Dr. E. A. Guynes gave his presidential address, his subject being "The Myocardium."

January 22—Dr. A. L. Rule read a paper on "Analysis of Abdominal Pain." Drs. Waterhouse, Zemp, R. B. Wood, Chumley,

Long, Raulston, Carmichael, and Charles Clayton discussed the paper.

January 29—Dr. E. P. Nicely's subject was "The Treatment of Varicose Veins by Injection and Application of Unna's Paste." Discussion by Drs. Acuff, McIlwaine, Chumley, and S. R. Miller.

February 5—Dr. J. B. Naive spoke on "Present Prospects and Problems in Tuberculosis Control." Discussion by Drs. Enneis and Hufstedler.

## OTHER MEDICAL SOCIETIES

The Black Patch Medical Society met at the Colonial Hotel, Springfield, January 15, at 6:30 P.M. Essayists were Dr. S. J. Fentress, Goodlettsville; Drs. George Carpenter and Horace Gayden, Nashville.

### VANDERBILT UNIVERSITY MEDICAL SOCIETY January 4, 1935

#### 1. Case Report:

An Abdominal Tumor in a Seven-Days-Old Infant—Dr. O. C. Bruton.

A six-day-old male infant admitted with symptoms of intestinal obstruction since birth was found to have a large nodular mass in lower abdomen. On abdominal exploration a tumor which lay in the mesentery encroached upon the jejunum so as to entirely obstruct it. The tumor, including a portion of the intestine, was removed, and a side-to-side anastomosis, using the markedly distended proximal portion and the collapsed distal portion, was performed. The baby's post-operative course was remarkably satisfactory, and he was discharged in apparent good health after sixteen days hospitalization. The tumor proved to be a fibroma microscopically.

Case discussed by Drs. Brooks and Burch.

#### 2. Some Changes in the Blood Chemistry in Asphyxia—Dr. J. M. Johlin and Mr. Ferrin B. Moreland.

Prolonged severe anoxia produces in the turtle a marked drop in blood pH and total CO<sub>2</sub> content and rise in sugar and lactate. The administration of sodium bicarbonate during the asphyxia increases the lactate and decreases the sugar. The CO<sub>2</sub> excreted



during asphyxia, a large part of which comes from the bones, corresponds closely with the lactic acid increase. Insulin does not lower the high glucose level. Iodoacetate does not prevent the lactate from increasing.

Paper discussed by Dr. Wells and Dr. Garrey.

3. Experimental Chronic Cutaneous Blastomycosis in Monkeys: A study of the etiologic agent—Dr. W. A. DeMonbreum.

The fungus *Monosporium tulanense* Castellani proved to be the etiologic agent of a case of cutaneous blastomycosis. It may be cultivated in the yeast-like form as it occurs in the lesions, or as a mycelium. Its pathogenic phase is a chlamydospore, which germinates in tissues by budding. Cutaneous blastomycosis was reproduced in monkeys by injections of the fungus. As in man, the experimental disease in monkeys affords an opportunity for experimental therapeutics.

Paper discussed by Dr. Witt and Dr. Goodpasture.

#### AMERICAN COLLEGE OF SURGEONS SECTIONAL MEETING

The Southern sectional meeting of the American College of Surgeons this year will be held in Birmingham, Ala., on Thursday and Friday, March 7 and 8. Headquarters will be at the Tutwiler Hotel.

There will be included in this section the following states: Alabama, Georgia, Florida, Mississippi, Louisiana, and Tennessee.

An active Committee on Local Arrangements, with Dr. James M. Mason as chairman, and Dr. Edward O'Connell as secretary, have plans well in hand for an excellent meeting.

Following is a preliminary outline of the entire program:

#### *Thursday, March 7, 1935*

- 8:00- 9:00—Registration.
- 9:00-12:00—Operative Clinics.
- 9:30-12:00—Hospital Conference.
- 12:30- 2:00—Medical Motion Pictures.
- 2:30- 5:00—Hospital Conference.
- 5:00- 5:30—Annual Meeting, Fellows of the College.

7:00- 8:00—Medical Motion Pictures.

8:00-10:30—Scientific Session, General Surgery.

8:00-10:30—Scientific Session, Eye, Ear, Nose, and Throat Surgery.

#### *Friday, March 8, 1935*

9:00-12:00—Operative Clinics.

9:00-12:00—Hospital Conference.

12:30- 2:00—Medical Motion Pictures.

2:00- 4:30—Hospital Conference.

2:30- 5:30—Scientific Session, General Surgery.

2:30- 5:30—Scientific Session, Eye, Ear, Nose, and Throat Surgery.

8:00-10:00—Community Health Meeting.

Some of the distinguished visitors from outside of the section who will be present on this occasion are: Dr. Franklin H. Martin, Chicago, Director General, American College of Surgeons; Dr. Irvin Abell, Louisville, Professor of Clinical Surgery, University of Louisville Medical Department; Dr. George Crile, Cleveland, Chairman, Board of Regents, American College of Surgeons; Dr. Winchell M. Craig, Rochester, Associate Professor of Surgery, Mayo Foundation; Dr. Frederic W. Bancroft, New York City, Associate Professor of Clinical Surgery, Columbia University College of Physicians and Surgeons; Dr. Frederic A. Besley, Waukegan, Professor of Surgery, Northwestern University Medical School; Dr. Robert B. Greenough, Boston, President, American College of Surgeons; Dr. LeRoy Long, Oklahoma City, Surgeon, St. Anthony's Hospital; Dr. Charles L. Scudder, Boston, Consulting Surgeon, Massachusetts General Hospital; Dr. Malcolm T. MacEachern, Chicago, Associate Director, American College of Surgeons, and Director of Hospital Activities; Dr. M. N. Newquist, Chicago, Department of Industrial Medicine and Traumatic Surgery, American College of Surgeons; and Robert Jolly, Houston, President, American Hospital Association.

A cordial invitation to attend this most interesting meeting is extended not only to the fellows and hospitals of the various states included, but to the entire medical profession at large.

# LIST OF OFFICERS OF THE TENNESSEE STATE MEDICAL ASSOCIATION

President—Dr. J. O. Manier, Nashville.  
 Vice President for East Tennessee—Dr. W. B. Campbell, Cleveland.  
 Vice President for Middle Tennessee—Dr. J. K. Blackburn, Pulaski.  
 Vice President for West Tennessee—Dr. G. H. Berryhill, Jackson.  
 Secretary-Editor—Dr. H. H. Shoulders.  
 Assistant Secretary-Editor—Dr. W. M. Hardy.

## TRUSTEES

Chairman and Treasurer—Dr. C. M. Hamilton, Doctors Building, Nashville.  
 Dr. Ralph Monger, Medical Arts Building, Knoxville.  
 Dr. W. L. Williamson, 915 Madison Avenue, Memphis.  
 Dr. H. B. Everett, 2541 Broad Street, Memphis.  
 Dr. E. R. Zemp, Walnut Street, Knoxville.

## COUNCILORS

First District—Dr. L. E. Dyer, Greeneville.  
 Second District—Dr. S. R. Miller, Knoxville.

Third District—Dr. J. H. Revington, Chattanooga.  
 Fourth District—Dr. J. T. Moore, Algood.  
 Fifth District—Dr. John W. Sutton, Petersburg.  
 Sixth District—Dr. L. W. Edwards, Nashville.  
 Seventh District—Dr. C. D. Walton, Mt. Pleasant.  
 Eighth District—Dr. J. R. Thompson, Jackson.  
 Ninth District—Dr. E. H. Baird, Dyersburg.  
 Tenth District—Dr. W. B. Burns, Memphis.

Speaker of the House of Delegates—Dr. E. R. Zemp, Knoxville.

Delegates to the American Medical Association—

Dr. E. G. Wood, Knoxville; East Tennessee.  
 Dr. H. H. Shoulders, Nashville; Middle Tennessee.  
 Dr. H. B. Everett, Memphis; West Tennessee.

Alternates—

Dr. E. T. Newell, Chattanooga; East Tennessee.  
 Dr. M. M. Cullom, Nashville; Middle Tennessee.  
 Dr. E. C. Ellett, Memphis; West Tennessee.

## OFFICERS OF COUNTY MEDICAL SOCIETIES FOR THE YEAR 1935

All societies have been urgently requested to send in the names of the newly elected officers for the year 1935 in order that we may have a complete roster of society officers in the Journal for the benefit of the membership at large.

| COUNTY                                | PRESIDENT                     | VICE PRESIDENT                        | SECRETARY-TREASURER              |
|---------------------------------------|-------------------------------|---------------------------------------|----------------------------------|
| Anderson                              | Thomas Jennings, Clinton      | Edward Dickson, Coal Creek            | J. S. Hall, Clinton              |
| Bedford                               | W. T. Sharpe, Farmington      | Alfred Farrar, Shelbyville            | W. H. Avery, Shelbyville         |
| Blount                                | C. C. Vinsant, Maryville      | L. C. Olin, Maryville                 | H. A. Calloway, Maryville        |
| Bradley                               | Vance H. Bell, Cleveland      | D. N. Arnold, Cleveland               | Wm. A. Garrott, Cleveland        |
| Campbell                              | A. L. Lawson, Elk Valley      | G. M. Rogers, LaFollette              | F. A. McClintock, Newcomb        |
| Carroll                               | E. T. Pearson, Elizabethton   | J. B. Shoun, Elizabethton             | J. H. Williams, McKenzie         |
| Carter                                | I. A. P. Shields, Hartford    | H. S. Shoulders, Nashville            | E. L. Caudell, Elizabethton      |
| Cocke                                 | W. G. Kennon, Nashville       | P. E. Miller, Tigrett (Dyer)          | J. E. Hampton, Newport           |
| Davidson                              | E. H. Baird, Dyersburg        | R. C. Newkirk, Tiptonville (Lake)     | J. P. Gilbert, Nashville         |
| Dyer, Lake, and Crockett              |                               | J. O. McKinney, Friendship (Crockett) | C. L. Denton, Dyersburg          |
| Fayette and Hardeman                  | John Morris, Somerville       | L. D. McAuley, Oakland                | A. Richards, Bolivar             |
| Franklin                              | W. F. Smith, Decherd          | A. P. Smith, Winchester               | John P. Grisard, Winchester      |
| Gibson                                | P. D. Jones, Milan            | L. H. Montgomery, Trenton             | F. L. Roberts, Trenton           |
| Giles                                 | Joe B. Wright, Lynnville      | R. E. Warren, Pulaski                 | T. F. Booth, Pulaski             |
| Greene                                | L. E. Dyer, Greeneville       | M. A. Blanton, Mosheim                | C. P. Fox, Jr., Greeneville      |
| Hamilton                              | James L. Bibb, Chattanooga    | D. N. Williams, Chattanooga           | W. J. Sheridan, Chattanooga      |
| Hardin, Lawrence, Lewis, Perry, Wayne | G. N. Springer, Hohenwald     | A. H. Sorrelle, Brownsville           | C. C. Stockard, Lawrenceburg     |
| Haywood                               | W. D. Poston, Brownsville     | Eloy Scruggs, Paris                   | Roy M. Lanier, Brownsville       |
| Henry                                 | A. F. Paschall, Puryear       | R. C. Gaw, Gainesboro                 | R. Graham Fish, Paris            |
| Jackson                               | J. D. Quarles, Whitleyville   | W. F. Christenberry, Knoxville        | F. B. Clark, Gainesboro          |
| Knox                                  | Eugene Abercrombie, Knoxville |                                       | Jesse C. Hill, Knoxville         |
| Madison                               | E. M. Ragsdale, Columbia      | D. B. Andrews, Columbia               | S. M. Herron, Jackson            |
| Maury                                 | R. W. Epperson, Athens        | S. B. McClary, Sr., Etowah            | C. D. Walton, Mt. Pleasant       |
| McMinn                                | T. M. Roberts, Sweetwater     |                                       | L. A. Brendle, Englewood         |
| Monroe                                |                               |                                       | W. J. Cameron, Sweetwater        |
| Montgomery                            | H. P. Hyde, Copperhill        | W. Y. Gilliam, Copperhill             | Paul E. Wilson, Clarksville      |
| Polk                                  | Z. L. Shipley, Cookeville     | J. Fred Terry, Cookeville             | F. O. Geisler, Isabella          |
| Putnam                                | L. A. Killefer, Harriman      | R. F. Register, Rockwood              | Thurman Shipley, Cookeville      |
| Roane                                 | W. Foster Fyke, Springfield   | A. R. Kempf, Springfield              | W. W. Hill, Harriman             |
| Robertson                             | J. D. Hall, Readyville        |                                       | W. S. Rude, Ridgetop             |
| Rutherford                            | O. H. Yarberry, Sevierville   | R. G. Henderson, Memphis              | J. A. Scott, Murfreesboro        |
| Sevier                                | Jas. B. Stanford, Memphis     |                                       | C. P. Wilson, Sevierville        |
| Shelby                                |                               |                                       | A. F. Cooper, Memphis, Secretary |
| Smith                                 | R. E. Key, Monoville          | Rhea E. Garrett, Dixon Springs        | J. J. Hobson, Memphis, Treasurer |
| Sullivan and Johnson                  | W. R. Rogers, Bristol, Va.    | L. C. Cox, Kingsport (Sullivan)       | Thayer S. Wilson, Gordonsville   |
| Warren                                |                               | J. C. Hutchenson, Crandall (Johnson)  | Arthur Hooks, Bristol, Tenn.     |
| Washington                            |                               |                                       | John S. Harris, McMinnville      |
| Weakley                               | R. W. Brandon, Martin         | H. G. Edmonson, Martin                | Carroll H. Long, Johnson City    |
| White                                 | S. E. Gaines, Sparta          | Vernon Hutton, Ravenscroft            | P. W. Wilson, Dresden            |
| Williamson                            | T. C. Rice, Franklin          | R. H. Hutchison, Franklin             | A. F. Richards, Sparta           |
| Wilson                                | J. L. Ames, Lebanon           | C. C. Young, Alexandria               | K. S. Howlett, Sr., Franklin     |
|                                       |                               |                                       | J. R. Bone, Lebanon              |



## STANDING COMMITTEES

## COMMITTEE ON SCIENTIFIC WORK

H. H. Shoulders, Chairman, Nashville  
 A. F. Cooper, Memphis  
 W. J. Sheridan, Chattanooga  
 Jesse C. Hill, Knoxville

COMMITTEE ON PUBLIC POLICY AND  
LEGISLATION

L. W. Edwards, Chairman, Nashville  
 T. R. Ray, Shelbyville  
 Robert Sullivan, Nashville  
 Battle Malone, Memphis  
 Tom R. Barry, Knoxville  
 J. O. Manier, ex officio, Nashville  
 H. H. Shoulders, ex officio, Nashville

## COMMITTEE ON MEDICAL EDUCATION

O. S. Warr, Chairman, Memphis  
 W. H. Witt, Nashville  
 Franklin Bogart, Chattanooga  
 Oliver Hill, Knoxville

ADVISORY COMMITTEE TO THE WOMAN'S  
AUXILIARY

B. F. Byrd, Chairman, Nashville  
 Percy Wood, Memphis  
 Eugene Abercrombie, Knoxville

## LIAISON COMMITTEE

Hiram A. Laws, Chattanooga (five years)  
 Tom Mitchell, Memphis (four years)  
 J. L. Raulston, Knoxville (three years)  
 W. C. Dixon, Chairman, Nashville (two years)  
 W. P. Wood, Knoxville (one year)

STATE TUBERCULOSIS HOSPITAL  
COMMISSION

W. S. Rude, Chairman, Ridgetop  
 O. N. Bryan, Nashville  
 H. R. Townsend, Oakville  
 James L. Hamilton, Chattanooga

## HOSPITAL COMMITTEE

Lee Gibson, Chairman, Johnson City  
 D. R. Pickens, Nashville  
 E. H. Baird, Dyersburg  
 E. Dunbar Newell, Chattanooga  
 Kyle C. Copenhagen, Knoxville  
 W. K. Edwards, Centerville  
 J. A. McIntosh, Memphis

## CANCER COMMITTEE

Ralph H. Monger, Chairman, Knoxville  
 A. M. Patterson, Chattanooga  
 J. A. Crisler, Jr., Memphis  
 James W. McClaran, Jackson  
 Howard King, Nashville  
 E. T. West, Johnson City  
 J. A. McCulloch, Maryville

## ABSTRACTS OF CURRENT LITERATURE

## ANESTHESIA

By HUGH BARR, M.D.  
 Medical Arts Building, Nashville

Correlation of Visceral and Somatic Activity Following Administration of Hypnotics. J. P. Quigley, O. W. Barlow, and C. K. Himmelbach. *Journal Pharmacology and Experimental Therapeutics*, April, 1934.

There is a definite evidence that barbital compounds have a depressant action on smooth muscle, but less so than ether, the uterus being more resistant than other smooth muscles. In 248 experiments, some of them repeated several times a week, no harmful effects were noted.

It was found that the barbiturates had a depressant action on the colon, ileum, and stomach, affecting both mobility and tone. Depression was most rapid with pentobarbital, slower with amytal, and slowest with barbital. Rapidity of hypnosis bore the same relation. The tendency to the production of excitement was more marked with amytal and least marked with pentobarbital.

Both avertin crystals and avertin fluid depressed gastrointestinal and somatic activity, and its general action was quite similar to that of the barbiturates, but the duration was longer.

## DERMATOLOGY

By E. E. BROWN, M.D.  
 Doctors Building, Nashville

A New Auxiliary Treatment for Impetigo Contagiosa, by Lester Hollander and Joseph J. Hecht. *Am. J. Dis. Child.*, August, 1934. *Archives of Dermatology and Syphilology*, December, 1934.

The authors describe a new treatment which is as follows:

The surface of the skin surrounding the infected area is washed with soap and water and thoroughly dried. The lesion is painted with several layers of metaphen 1:500 in flexible collodion. This is permitted to dry layer by layer. In twenty-four hours these layers are removed with tissue forceps. The adherent part is left on and the mixture is re-applied in several layers. The procedure is repeated on the third day. On the fourth day all of the metaphen-collodion preparation which has curled up at the edges and the underlying encrustation is removed. If the underlying skin is dry, a light application of 2 per cent ammoniated mercury is used. If the surface is still moist, the metaphen-collodion mixture is applied for another three days. The advantages claimed for this treatment are the ease of application and the impervious character of the dressings which easily confine the infection so that autoinoculability and contagion

become less likely, and thus does not necessitate exclusion of school children from classroom activity.

## OPHTHALMOLOGY

By ROBERT J. WARNER, M.D.  
Doctors Building, Nashville

Intracapsular Cataract Extraction, by L. C. Peter.  
*American Journal of Ophthalmology*, January, 1935.

Of 112 consecutive cases of extraction in the capsule, with smooth capsule forceps, 75.7 per cent were successfully delivered without rupture of the capsule. In 6.7 per cent Peter was unable to grasp the capsule with forceps. In 17.6 per cent the capsule ruptured. In forty-three consecutive cases during the same period, in which the suction method of fixation was used, 9.1 per cent of the capsules ruptured, and 90.9 per cent were successfully delivered. Most of the failures were in young patients who, for the most part, had complicated cataracts.

The visual acuity was the same by either intracapsular method. In 43 per cent vision of 6/5 or better was obtained, in 34 per cent 6/6 and in 21 per cent 6/7.5 to 6/15 because of fundus pathology. In forty consecutive extracapsular extractions, vision of 6/6 or better was obtained in 63 per cent and 6/7.5 to 6/15 in 37 per cent. Vitreous loss occurred in 9 per cent of cases of smooth forceps delivery, but no permanent harm to the eye resulted. Similar results were had in the vacuum cases of that series, while in a later series vitreous loss was reduced to 4.2 per cent. Secondary glaucoma did not occur in any of the intracapsular cases.

## PEDIATRICS

By JOHN M. LEE, M.D.  
Doctors Building, Nashville

Immunization Against Whooping Cough. Louis W. Sauer, M.D. *Amer. Jour. Dis. of Children*, January, 1935.

The author used a vaccine made every few months from recently isolated strains of the Bordet-Gengou bacillus grown on a medium containing 20 per cent freshly defibrinated human blood. The forty-eight-hour growth was suspended in normal saline, each cc. containing ten billion bacilli.

After cleansing the skin with alcohol and using syringe and needle sterilized by heat, 1 cc. of this vaccine was injected just under the skin in the deltoid region of each arm; one week later, 1.5 cc. was injected in the biceps region of each arm; one week later, 1.5 cc. was injected in the triceps region of each arm. A total of 8 cc. was given to each of more than 500 nonimmune children who ranged in age from six months to four years, the average age being fourteen months.

"Reactions to the injection are chiefly local, though a transient rise in temperature may occur within from four to thirty-six hours after an injection. . . . A transient local redness, tenderness, and induration may be noted in some instances. No reaction has been severe enough, however, to necessitate postponement of subsequent injections. . . . The local reaction usually reaches a peak about twenty-four hours after the injection, after which time the tenderness rapidly subsides. At the time of the subsequent injection a small, circumscribed residual induration of the skin or a subcutaneous nodule may be palpable. . . . They completely disappear in the course of several weeks after the last injection. . . . If a marked reaction should follow an injection, the subsequent dose should not be increased, but an extra, bilateral injection should be given one week after the third injection; or the subsequent bilateral injections should be given ten days apart."

Not one of 170 nonimmune children receiving injections, subsequently exposed, has contracted the disease. The thirty-two children used as controls contracted unquestionable pertussis. Exposures occurred from four months to four and one-half years after the injections.

The best age for immunization is probably between the seventh and tenth months. It requires about four months for the immunization process to be completed, hence the vaccine should be given during the nonepidemic period. The vaccine is an immunizing agent, and is not recommended as a therapeutic agent, nor after exposure has occurred. The vaccine should be kept refrigerated until used; it contains no alien serum and will not sensitize, nor will it cause anaphylactic reactions, serum sickness or the arthus phenomenon.

## SURGERY—GENERAL AND ABDOMINAL

By ROBIN F. MASON, M.D., F.A.C.S.  
735 Medical Arts Building, Memphis

Some Remarks on Operative Procedures for Appendicitis. Mont R. Reid, M.D., Cincinnati, Ohio. *S. G. & O.*, September, 1934, Vol. LIX, No. 2.

The great interest in the mortality of appendicitis prompted the author to make a careful study of over 2,000 cases which were operated upon at the Cincinnati General Hospital.

While the author agrees with other published reports that delay in operating and the use of purgatives were the principal causes in the unnecessary sacrificing of lives, yet another factor having to do with the operative procedure seemed to him significant.

He states that in the Cincinnati General Hospital from 1915 to 1922, 409 cases of acute appendicitis were operated through right rectus incisions with a mortality rate of 9.8 per cent.

Early in 1922, the McBurney incision was



adopted for acute appendicitis and 1,626 cases have been operated with a mortality rate of 5.2 per cent.

The significance in contrast is slightly altered by the fact that the percentage of cases with abscess and peritonitis fell from 51.3 per cent in the first series to 41.6 per cent in the second.

The author then states that when one studies the U. S. Standard Mortality Statistics it seems apparent that the death rate is lower in places where the McBurney incision is most widely used.

The advantages of the McBurney incision are: (1) Less soiling of the cavity. (2) Less need for handling the intestines. (3) Less need for gauze packs while operating. (4) Drains can be so placed as to be practically extraperitoneal. (5) Fewer wound complications. (6) Shorter convalescence. (7) Healed wound is less disabling.

He then hazards the opinion that fear of a mistaken diagnosis is a chief objection to the McBurney incision, though, in his hands where another incision has to be made, the McBurney incision can often be used for drainage, etc.

The author admits that the argument against this incision is strongest where the appendicitis is not acute and some other intraabdominal condition may exist.

The author then calls attention to another point of technique which he thinks of value, viz: where the appendix is gangrenous or ruptured at or near its base and a fecal fistula seems inevitable, the proper way to close the weak spot is to see that the sutures engage the tough fibers of the submucosa, rather than trust to luck by placing prophylactic drains in that area. In this way there is less need for drainage and fewer fecal fistulae.

Again where the appendix seems to have too short a mesentery which makes delivery of it difficult, the real cause is frequently adhesions or a peritoneal stalk, which, when divided with the knife, makes delivery easy.

All the above maneuvers can be easily carried out through the McBurney incision and make for lower mortality.

## UROLOGY

By TOM R. BARRY, M.D., F.A.C.S.  
Medical Building, Knoxville

Experiences with Gonococcus Filtrate (Corbus-Ferry) and Other Forms of Intradermal Therapy in the Treatment of Gonorrhea. R. E. Cumming and R. A. Burhans. J. A. M. A., Vol. 104, No. 3, January 19, 1935.

It has long been recognized that the skin is not merely a protective sheath for the body, but

an organ of vital importance in producing immunity.

Muller in 1922 called attention to the fact that gonorrheal urethritis could be aggravated by subcutaneous injections of proteins.

The author makes no pretense to theorize on the rational of intracutaneous filtrate therapy. He states that gonococcus vaccine has not proven of much value in the treatment of gonorrhea, and that large doses are really a detriment. The authors have also used intradermal immunogens, lactalbumin, and sterile bouillon without evidence of benefit. Gonococcus filtrate is a soluble toxin, and is standardized by skin test reactions in susceptible individuals.

Their best results with gonococcus filtrate was produced by the filtrate which was kept at body temperature in contrast to that stored in an ice box.

Their experience comprises 124 cases during the past two years. One hundred and one were men, nineteen were women, and four were girls. Only twenty-one were considered early cases. Four had epididymitis with active involvement of prostate and vesicles. Of this series, 110 were private cases. In addition to the weekly filtrate injection, a mild local injection was used for anterior cases and the usual routine for the posterior involvement. In the clinic group of fourteen, the infection remained confined to the anterior urethra in all cases. They think that the patient's general condition has a great deal to do with the amount of reaction produced by the filtrate, the more robust the less the reaction. The blond reacts more severely than the brunette. Reactions are grade 1 to 4, one being a wheal one inch or less, and number four of 4 inches or more.

An inguinal adenitis often develops on the side of the injection when a strong reaction is produced.

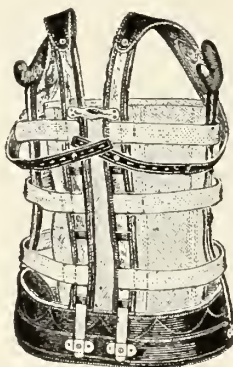
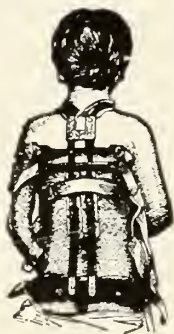
Dosage is from .1 to .3 cc. at weekly intervals, and is begun when the diagnosis is made. They report that cases of balanitis and acute urethral bleeding disappear overnight with one injection, but occasionally it seems to produce adnexal disease. Treatments are continued until many negative smears are found. The number of injections ranged from seven to ten. Organisms were found for a period of five weeks in the average case.

Gonorrheal vaginitis in children showed phenomenal improvement. They believe that gonococcus filtrate is indicated in acute and chronic gonorrhea in men, women, and children, but is best used as an adjunct to local treatment. The authors think that this is of great value as a provocative measure to prove cure.

**AS** YOUR PROFESSIONAL reputation is affected by every examination you make and every pair of lenses you prescribe, protect yourself by giving your patients only the best lenses that will faithfully reproduce the findings of your examinations. Milwide corrected curve lenses will assure you of accurate Rx's. They are built on scientific base curves, corrected for marginal errors, and pitched polished to finish free from aberration, pits and scratches.

## JOHN S. MILAM OPTICAL COMPANY

NASHVILLE, TENNESSEE



H-185



## SPECIAL ATTENTION

—given to the selection and fitting for your patients of Orthopedic Appliances.

Our long experience in the manufacture of braces enables us to help you solve your problems in working out mechanical aid for your patients.

We appreciate your coöperation, and know you will like our service.

153 FOURTH AVENUE, NORTH  
NASHVILLE, TENN.

**THEO. TAFEL CO.**



# THE JOURNAL

OF THE

## TENNESSEE STATE MEDICAL ASSOCIATION

DEVOTED TO THE INTERESTS OF THE MEDICAL PROFESSION OF TENNESSEE

ISSUED MONTHLY, Under Direction of the Trustees

H. H. SHOULDERS, M.D., Secretary and Editor

W. M. HARDY, M.D., Asst. Secretary-Editor

OFFICE OF PUBLICATION, 510 DOCTORS BUILDING, NASHVILLE, TENNESSEE

Volume XXVIII

MARCH, 1935

No. 3

### THE RELATION OF ALLERGY TO OPHTHALMOLOGY\*

KATE SAVAGE ZERFOSS, Nashville

THE TWO SUBJECTS of allergy and anaphylaxis cannot be definitely separated from each other or from immunity. The current opinion is that allergy is essentially a hypersensitiveness to irritants and lies in the field of anaphylaxis. Immunity represents the other extreme of the state of hypersensitiveness. Immunity may be acquired through the process of desensitization or be present naturally.

The substances producing or exciting an allergic state are called allergens or atopins. A hapten is a substance which cannot act alone as an antigen, but does so when united with certain proteins. A partial list of allergens is given in the slide.

The problem of allergy concerns all reactive tissue of the body, including the highly specialized tissue of the eye.

The early experimental work in ophthalmology was done by Uhlenhuth in 1903 on lens protein. This was followed by Nicolle and Abt's contribution in 1908. They injected foreign protein intraperitoneally and succeeded in sensitizing the animal. A reaction was produced when an intraocular injection of the same protein was made thirty-two days later.

In 1909, Stattler found that homologous blood serum produced no reaction when injected in the eye, whereas a marked reac-

tion followed the similar injection of heterogeneous serum.

Wessely, in 1911, advanced his theory that parenchymatous keratitis was allergic. He caused a similar keratitis to appear as the result of corneal injection of a foreign serum. Later, the same procedure was instituted for the other eye, and an immediate violent reaction followed, typical of the above condition.

In 1929-30, Seegal and Seegal proved that hypersensitivity of the eye was induced by intraocular injections of foreign protein. Five days later a local eye reaction was obtained by the intravenous injection of the same foreign protein. The work was followed by the complete desensitization of the animal.

A further observation made by these investigators was that after a rabbit received a sensitizing dose of an antigen in the anterior chamber, an ocular reaction followed the injection of the same antigen in the gastrointestinal tract.

Burky, in 1933, elicited an Arthus phenomena (or local anaphylaxis) and a generalized hypersensitivity of rabbits to beef serum.

Alan Woods has not only made numerous contributions to the knowledge of this field, but has compiled in his recent book all the important results of other investigators. His outstanding work has been on lens protein, syphilis, uveal pigment, and tuberculosis. In 1924 he reported a case of kerato-

\*Read before the Tennessee Academy of Ophthalmology and Otolaryngology, Chattanooga, April 9, 1934.

conjunctivitis resulting from contact with corn dust. The eye was injured prior to this time with a cornhusk. Desensitization caused a complete recovery.

Hobart, in 1933, concluded from his observations that a hypersensitiveness existed in some individuals to vitreous humor protein, the vitreous loss resulting from trauma or operation.

He suggested that intradermal tests be made prior to cataract operations to determine the sensitivity of the patients, and, if found to give positive reactions, they should be desensitized.

Rudolph and Cohen, in 1934, stressed the value of instilling one drop of 1:10 dilution of horse serum in saline in the conjunctival sac of the patient who was to be given tetanus or diphtheria antitoxin. Instilling saline in the other eye gave a control test. They made a reading of a positive reaction when itching, lacrimation, injection, and chemosis of the conjunctiva and edema of the lids took place. When this test was positive and a history and other tests of atopy to horses were positive, the use of the serum was contraindicated. Anaphylaxis and death in such cases were of frequent occurrence. Desensitization was impossible.

A positive Calmette test with tuberculin illustrates a localized hypersensitivity of the eye. An eye which had been tested in this manner was found to have reacted later, when a subcutaneous tuberculin injection was given. The other eye was unaffected.

Passing from a partial summary of the numerous contributions to allergy in ophthalmology, a few special considerations are noted in regard to the role of allergy as it affects (1) the conjunctiva, (2) the cornea, (3) uveal pigment, and (4) the lens.

Vernal catarrh is the most familiar of all reactions of an allergic nature. Its seasonal incidence, annual recurrence of attacks, age incidence—occurring in children and young adults only—the pruritus, the clinical course, and appearance of the tissue are well-recognized facts.

An examination of the tissue in such cases has shown edema, small lymphocytic and eosinophilic invasion, and connective

tissue proliferation in the more chronic cases. In some instances the cornea has been infiltrated in numerous sites at the periphery. Friedenwald stated that cicatrization of the palpebral conjunctiva may be the end stage of the condition in some cases. A smear of the conjunctival discharges stained with Wright's stain has demonstrated an eosinophilia. Lehrfeld reported 40 positives for eosinophils in a total of 69 smears in this disease.

Tests for pollen sensitization are made by introducing the pollen into the conjunctival sac. It is removed by saline irrigations after a period of five minutes. A positive reaction is determined by the extent of the injection and chemosis of the conjunctiva.

The following substances have been reported as acting as allergens in conjunctivitis; atropin, butyn, feathers, serum, pollen, house dust, and henna dyes. One must differentiate chemical irritation from allergic manifestations of chemicals.

In the usual cases of so-called hay fever, or allergic rhinitis, an accompanying eye irritation has been generally observed. The cases to be reported are exceptional in that there was an absence of rhinitis in the first two, while in the third the conjunctival pruritus was unilateral and perennial, the rhinitis being definitely of seasonal occurrence.

#### CORNEAS

A case of ulceration of the cornea resulting from the use of an eyelash dye was reported by Moran, January 27, 1934.

His case of bilateral necrosis of the cornea was regarded as being due to hypersensitivity to the dye used on the patient's eyebrows and lashes. The sequence of symptoms and signs was as follows:

First day: Pruritus.

Fourth day: Conjunctivitis.

Eleventh day: Corneal ulcer of right eye.

Thirteenth day: Hypopyon and perforation of cornea.

Fourteenth day: Pruritus and ulcer of left cornea.

Fifteenth day: Complete epithelial denudation.

The patient's scratch test was 4+ to the



dye (paraphenylenediamine). Moran advocated scratch skin testing for all dyes to be used cosmetically as a preventive measure.

S. G. Greenbaum reported a case of bilateral dermatconjunctivitis in a woman who had used an eyelash dye twelve days prior to the occurrence of the condition. He considered that the long period intervening between the application of the dye and the onset of the symptoms indicated the presence of an allergic reaction.

He noted improvement in forty-eight hours and continued rapid healing after cutting off the eyelashes.

Wilmer reported a case of corneal ulceration from corn dust contact which was a replica of the one reported by Woods.

Verhoeff and Finnoff's experimental work in tuberculous keratitis was of significance. Both tuberculous and syphilitic parenchymatous keratitis have been regarded as being allergic in character, although not definitely proven to the satisfaction of all observers. Even though the role of tuberculosis is now commanding much attention, no further reference will be made to it in this paper, because of the extensiveness of the subject.

#### UVEAL PIGMENT

The theory that uveal pigment acted as an allergen in producing sympathetic ophthalmia was introduced by Elschmig in 1910. Fifteen years later Woods reported the results of intradermal tests made with uveal pigment in thirty cases of penetrating wounds of the eye. Sixteen showed a positive reaction. Twelve had sympathetic ophthalmia. Gill's results with the use of the intradermal tests with uveal pigment were positive in all of his cases having the disease. Wood's later series of similar cases had eighteen positive skin tests out of the total group of twenty.

Hypersensitivity to uveal pigment is recognized to exist in cases of sympathetic ophthalmia, but is not accepted as the entire or primary cause. This allergic state is considered as a possible explanation of some cases of recurrent iritis and uveitis.

Uveal pigment is given intramuscularly in the treatment of patients with sympa-

thetic ophthalmia. The desensitization is gradually produced and is sufficiently effective to justify its use.

#### LENS PROTEIN

The extensive investigations of the lens in relation to allergy will be omitted in this paper except for reference to Verhoeff and Lemoine's classification of endophthalmitis phacoanaphylactica as a definite allergic disease of the eye. Burky and Woods were of the same opinion in explaining this reaction. They advised the intracutaneous test with lens protein in all cases who were to have cataract extractions. Desensitization was to be secured in all patients having a positive skin test. This procedure would be unnecessary, obviously, if all intracapsular operations attempted were successful.

The above-named authorities state that lens cortex remaining in the eye after cataract extractions, or that resulting from being freed from a penetrating wound of the lens, can constitute a naturally acquired allergen. The severe inflammatory reactions have been observed and explained on this basis.

#### SYPHILIS

The immunity of the eye to syphilis is more adequately understood and proven experimentally than the allergy. The theory is that immunity is disturbed in cases receiving insufficient arsphenamine. The late lesions of syphilis, such as gummata, iritis, keratitis, and uveitis, are recognized by some as being manifestations of hypersensitivity to the specific virus. The most striking so-called allergic response of tissue to syphilis is interstitial keratitis; however, the experimental results are not entirely conclusive.

#### FOCAL INFECTION

Proof is lacking in establishing focal infection as causing allergic reactions in ocular tissue. The bacterial toxin is supposedly the antigen activating the tissue response. Clinical improvement of the lesions as desensitization is obtained adds presumable evidence to support the theory.

The skin tests are unreliable and tissue for examination is unavailable as a rule.

Kolmer has advocated the injection of filtrates of the cultures of the organisms obtained from the site of the focal infections, as apical abscesses, sinuses, and tonsils, etc. He refers this to the organisms in a vaccine in desensitization. The removal of the focal infections may be coupled with the employment of the measures of desensitization.

In general, it is advisable to obtain a complete family and personal history relative to the former occurrence of allergic reactions. Dermatitis, urticaria, eczema, asthma, and rhinitis are the more important subjects in this group.

Rackemann states that 50 per cent of all allergic patients have a history of hereditary hypersensitivity and that they may have allergic reactions other than those confined to the eye.

There are many cases that suggest the etiology of allergy at once. In doubtful cases, and in certain ones in which all other attempts to establish an etiology have failed, the reference to a competent allergist should be made.

The chronicity of the eye condition, recurrence of the attacks, and the rapidity of healing of old lesions and development of new ones in succession are suggestive points in favor of the case being allergic, if a definite diagnosis cannot be made readily by other means.

A prolonged period is required for complete testing, and even a longer time is necessary for desensitization. In enthusiasm for this more recent addition in diagnostic method, one must be cautious not to omit the other procedures which are customarily used.

A brief summary is given of five cases illustrating presumable ophthalmic allergy. The other etiological factors were excluded. It is noted that the basal metabolic rates were low in the two cases in which this test was recorded.

Name: Miss F. W. (July 13, 1933).

Type of ophthalmic allergy: Ulcerative keratitis (confined to upper temporal quadrant).

Results of allergic test: Willow+, cocklebur+, yellow daisy+, orrisroot 2+, black pepper 2+, carrot+, fish+, maple+, elm+.

Onset: June 1, 1933.

Associated allergy: Headaches, dermatitis, gastrointestinal.

Treatment: Orrisroot extract, tobacco, dust, maple, elm.

Name: Miss H. G. (August 31, 1933).

Type of ophthalmic allergy: Iritis.

Results of allergic test: Orrisroot 2+, duck feathers 2+, squash 2+, tea 2+, cucumber 2+.

Onset: August 26, 1933. Cucumber cream used a few days prior to onset of iritis.

Associated allergy: Headaches.

Treatment: Orrisroot, duck feathers, foods.

Name: Mr. J. L. (July 31, 1933).

Type of ophthalmic allergy: Injection of conjunctiva and pruritus.

Results of allergic test: Redtop+, Bermuda grass+, Johnson grass+, June grass+, short ragweed+, goldenrod+, silk+, wormwood+, dust+, halibut+, red snapper+, eggplant+, cucumber+, flaxseed+, sausage+, soybeans+, green peas+, coffee+, black-eyed peas+, squash+.

Onset: July 17, 1933.

Associated allergy: Rhinitis, allergic, chronic sinusitis, eczema of dorsal surface of hand.

Basal metabolic rate: Eighteen per cent + or —.

Treatment: Began August 1, 1933. Redtop, Bermuda grass, Johnson grass, June grass.

Name: Mrs. W. H. E. (April 6, 1932).

Type of ophthalmic allergy: Pruritus of left eye (lower palpebral conjunctiva, chiefly).

Results of allergic test: December 23, 1933. String beans+, mushroom+, Irish potato+, apricot+, cherry+, peach+, hazelnut+, mattress dust+, mixed grasses+, mixed ragweeds 2+, Timothy grass+, Bermuda grass+, sweet vernal+, short ragweed+, giant ragweed+, cocklebur+, sunflower+ corn+.

Onset: 1912.



Associated allergy: Allergic rhinitis, August-September 15. Occasional exacerbations during year. Migraine. Asthma.

Basal metabolic rate: Minus 14 per cent, December 23, 1933. Minus 6 per cent, February 16, 1934.

Treatment: Mixed grasses, mixed ragweed. Previous treatment 1931-32.

Name: Dr. K. S. (May 2, 1933).

Type of ophthalmic allergy: Bulbar conjunctival injection and pruritus.

Results of allergic test: Maple 2+, sweet vernal+, Bermuda grass+, redtop+, orchard grass+, Johnson grass+, rye grass+.

Onset: March 25, 1933.

Associated allergy: Negative.

Treatment: Three injections with Bermuda, redtop, orchard, Johnson, sweet vernal, and rye grasses.

#### COMMENT

1. The experimental work in ophthalmic allergy has been extensive and has established that the tissue of the eye reacts to certain irritants, such as tuberculin, blood serum, lens protein, uveal pigment, pollens, etc.

2. The skin of the lids, the conjunctiva, cornea, uveal pigment, and the lens are the structures of the eye most frequently involved in allergic reactions.

3. The response of the eye to the instillations of serum, pollen, and tuberculin is of diagnostic importance in general medicine.

4. The determination of hypersensitivity to lens protein and vitreous humor is of value in the examination of a cataract case preliminary to an operation.

5. Desensitization is of therapeutic interest.

#### BIBLIOGRAPHY

1. Burky, E. L.—*Arch. Ophthalm.*, 1933, 10, 368.
2. Coca, A. F.—“*Asthma and Hay Fever in Theory and Practice.*”
3. Conlon, F. A.—*Am. J. of Ophthalm.*, 1919, 2, 486.
4. Gill, W. D., *South. M. J.*, 1930, 23, 885.
5. Greenbaum, S. G.—*J. A. M. A.*, 191, 363.
6. Hobart, C.—*Arch. Ophthalm.*, 1933, 10, 237.
7. Moran, C. T.—*J. A. M. A.*, 1934, 102, No. 4, 286.
8. Rackemann, F. M.—“*Clinical Allergy.*”
9. Rudolph, J. A., and Cohen, M. B.—*J. A. M. A.*, 1934, 102, No. 12, 900.
10. Woods, A. C.—“*Allergy and Immunity in Ophthalmology.*”
11. Woods, A. C., and Little, M. F.—*Arch. Ophthalm.*, 1933, 9, 200.

#### DISCUSSION

DR. ROBERT LEACH (Knoxville): Dr. Zerfoss has given us a very interesting paper and much food for thought. The subject of allergy is one that is commanding a great deal of attention now in general medicine, but as yet I don't think they have more than scratched the surface, as allergic manifestations are dependent upon so many different factors that the conditions bringing about these reactions have not been standardized.

I do not make the sensitization tests myself, but men doing this type of work to whom I have referred patients tell me that the patient reacts to certain substances at one time and probably within a week or month thereafter, without having been desensitized, will not react to the same things. It seems that when a patient is allergic he is allergic to many different substances. This is borne out in the reports of cases that Dr. Zerfoss has just made. So, it seems to me that the question of allergy in regard to patients depends upon their general condition; that is, there is some systemic factor which makes them allergic to all these different tests while other patients are not allergic.

In the cases reported where a basal metabolism was run, the findings were minus, indicating an endocrine imbalance. It would have been interesting to have known whether the other cases also had a minus basal metabolism.

Rowe, in his work on allergy, in discussing urticaria, is of the opinion that focal infections are to be considered in cases of urticaria and especially in allergies developing later in life. The removal of the focal infection is attended with improvement, if not a cure, of the patient.

Dr. Lane, in 1931, read a paper before the section of ophthalmology, American Medical Association, in which she states that vernal conjunctivitis, which is mentioned by Dr. Zerfoss as being an allergic condition, is considered by several investigators to be caused by the action of the ultraviolet rays of the sun upon tissues of a patient with a subnormal blood calcium. So this, too, may be considered a factor in the development of allergy. Rowe further states that eczema of the eyelids, ocular pain, edema of the eyelids, congestion of the sclera with painful eyes, especially when these are accompanied by gastrointestinal disorders, should be considered as allergic until tests shall have proven the contrary.

In some of these cases the tests were negative, but some were improved and others cured by putting the patient on an elimination diet. Butyn was mentioned as being allergic. I have two cases in which there was a definite and violent reaction,

and this should always be kept in mind when using this drug.

Hopkins and Keston, in the March issue of the *Archives of Dermatology and Syphilology*, report two cases of allergy, one a case of a woman 33 years of age who responded to fifteen different tests, and who had urticaria every July and August, accompanied by conjunctivitis. In her case the offending agents were milk and wheat. They also report a boy 4 years of age who had a violent conjunctivitis and urticaria surrounding the eye. Upon examination a white rabbit hair was found in the conjunctival sac. After removal of same, recovery was prompt and he later was shown to be allergic to white rabbit hair.

In 1914, Osler reported ocular hemorrhages, which were due to eating tomatoes and strawberries.

From my own observations and the observations of others who have had far more experience in allergic manifestations, I am constrained to believe that these reactions are very irregular, and, after finding a positive reaction in a given case, the desensitization of a patient does not always bring about the cure, and, as above stated, it may be necessary to resort to an elimination diet if the gastrointestinal canal is suspected. In some cases where we have grounds to believe the skin test is fallacious, it may be necessary to resort to a transfer test as a checkup on our previous findings.

**Conclusions:** In all recurring conditions affecting the eye, one should keep in mind the possibility of their allergic cause and have tests made accordingly. In all these cases, I think a basal metabolism should be made, and a blood calcium is not without value. In the next decade, we shall find a great deal of work will be done along the line of body chemistry and the vegetative nervous system which will probably clear up many of the heretofore perplexing questions pertaining to the diagnosis and treatment in medicine.

DR. J. B. STANFORD (Memphis): Dr. Zerfoss has covered an enormous amount of material in her short paper and has left little for the rest of us to say.

The medical profession has always been conservative, but some members of the profession are disposed to go to extreme lengths in certain assumptions. For example, the idea that the interstitial keratitis of syphilis is an allergic response is, to my mind, quite farfetched. It is just as reasonable to suppose that the loss of hair from the scalp in similar cases is an allergic manifestation. However, there is a place in the profession for that type of mind, because its possessors occasionally, in their reaching and groping, seize a valuable fact in the diagnosis and treatment of disease. We have seen illustrations of this in both allergy and endocrinology.

Clinically, in certain cases, it has been difficult for me to decide whether the eye condition was a

result of allergy or was due to endocrine dysfunction. I am not even certain that there is not a close relation between the two.

Dr. Zerfoss' last three cases are definitely allergic in origin, but I am doubtful of the first two. Further search or inquiry into these cases might reveal some other causes of their troubles which would be more consistent with our knowledge of ulcerative keratitis and iritis.

DR. FOWLER HOLLABAUGH (Nashville): Mr. Chairman and Members of the Academy:

I have enjoyed very much the paper presented by Dr. Zerfoss. The subject of allergy is by no means new, having been recognized in ancient times. Since the appearance of the first published works on allergy in relation to the eye, in 1903, much has been done upon this subject.

It has been definitely proven that the skin and mucous membranes of the body may be affected by allergic conditions. This is readily demonstrated by urticaria, hives, eczema, etc., involving the skin and such conditions of hay fever, asthma, and allergic rhinitis involving mucous membranes. With this in mind, it is not difficult to believe that allergic conditions involve the conjunctiva and probably the cornea.

We are all familiar with the more frequently seen forms of allergy, such as the redness, itching, and tearing of the eyes in hay fever and asthma, the reaction to drugs such as atropine and butyn locally, quinine and the coal-tar drugs systemically, certain face powders, cleansing and depilatory creams, eyelash and hair dyes, and a host of others. In most of these, the cause is fairly easy to determine.

Vernal catarrh is probably the most common of the so-called allergic eye diseases. This condition runs so true to form that there is little doubt as to its allergic nature.

The essayist lists tuberculous and syphilitic involvement of the cornea as an allergic reaction. This is a much disputed point, although tuberculosis certainly has some allergic manifestations; for example, the Von Pirquet test. Desensitization with tuberculin is of definite value in some cases.

Since Elschnig, in 1910, introduced the theory that sympathetic ophthalmia was due to a hypersensitivity to uveal pigment, much experimental work has been done upon this line. Some cases show a reaction to pigment, but the disease is so characteristic of an infectious process that this theory has almost been abandoned.

Verhoeff and Lemoine's work on hypersensitivity to lens protein as the cause of a definite clinical entity, endophthalmitis phacoanaphylactica, has aroused much comment, both pro and con. This condition is certainly in a very unsettled state at present. Whether it is a definite entity or simply a degree of severity of the reaction always present following opening of the capsule, either by



trauma or operation, we do not know. I might add that, on Dr. Verhoeff's service at the Massachusetts Eye and Ear Infirmary, no cases were skin tested over a period of nearly two years, and I am sure I recall several angry-looking eyes following cataract extraction.

The essayist mentions focal infection as the cause of certain allergic reactions. According to Alan Woods, it has been clearly proven that bacterial infection of a certain type produces hypersensitivity of ocular tissues. This seems to be a fairly logical explanation for some of those cases of inflammatory ocular diseases, supposedly due to focal

infection, where no organism can be isolated from the secondary focus.

A word as to the treatment of some of these conditions. Patients of an allergic nature almost invariably are sensitive to a large number of allergens. For example, Dr. Zerfoss' third case showed a positive skin test to eighteen substances. To me this is always discouraging and probably more so to the patient. Elimination of the offending substances from the diet or surroundings and desensitization often do give good results.

I have enjoyed Dr. Zerfoss' instructive paper very much.

# 102nd Annual Meeting

## Tennessee State Medical Association

### April 9, 10, 11

Headquarters—

### Noel Hotel

### Nashville

## HYPERTENSIVE HEART, THE MOST COMMON FORM OF SO-CALLED CHRONIC MYOCARDITIS\*

E. A. GUYNES, M.D., Knoxville

PREVENTIVE medicine has scored a great triumph in the realm of epidemic and infectious diseases, reducing the death rate from these diseases to a remarkable degree. This reduction is largely due to the accurate knowledge of the etiology of these affections gained through scientific studies of their causative organism.

Whereas the death rate from epidemic diseases in consequence of our knowledge of their causative organism on the whole has been on the decline, the death rate from chronic diseases, notably cancer and heart disease, has been steadily on the increase.

Obviously, the first step in the development of a program of prevention of heart disease is the acquirement of knowledge of the etiology factors involved. These factors have been found to vary with the geographical location, race, climate, and mode of life.

In 1933 in the United States there were 236,356 deaths due to heart disease. Of the above figures, 124,000 died of heart failure due to hypertension, a disease commonly known and so classified by the Bureau of United States Census as chronic myocarditis, which is misleading and unscientific.

There is no term in medical science which has been more abused and grossly misused than the term myocarditis. Heart failure in nonvalvular disease is usually diagnosed as chronic myocarditis by the average physician, which, in my opinion, is not at all times correct. I should say that myocarditis is the rarest of myocardial abnormalities. The term has always carried with it a background of inflammatory phenomena, such as would be seen following any acute or subacute infectious or toxic process.

Quoting Sir Thomas Lewis: "The term myocarditis has often been allowed most

loosely to comprise all altered states of the heart muscle, real or supposed. It has been employed improperly as an equivalent of myocardial weakness. Actually the use of the term myocarditis is scarcely to be justified clinically, except in relation to rheumatism, and here the term carditis is sounder."

Aschoff, after a most careful examination of 150 hearts, remarked that the amount of apparent anatomic damage due to inflammatory process, both in chronic myocardial insufficiency and in rheumatic heart disease, is usually so small that other factors must be invoked to explain the progressive heart failure resulting in these conditions.

Quoting Paul White: "The clinical diagnosis of myocarditis, so freely used in the past, has wrongly included many conditions, in particular the frequent instances of hypertensive heart disease in which is cardiac hypertrophy and enlargement, but no inflammatory reaction in the muscles. The term myocarditis has also wrongly included frequent instances of coronary disease in which degenerative changes, fibrosis, and atrophy may occur without actual inflammatory process." In the attempt to diagnose heart disease accurately, the term myocarditis is being wisely abandoned in large part. We must remember, nevertheless, that there does exist occasionally such a condition as myocarditis."

We recognize certain types of acute myocarditis following acute infectious diseases, particularly scarlet fever, typhoid fever, rheumatic fever, and diphtheria. Myocarditis both in the acute and subacute form is more commonly found in the first decade of life, the earlier it occurs the greater the possibilities of complete restitution of involved heart muscle.

The existence of syphilitic myocarditis has been thoroughly established and demon-

\*Read before the Knox County Medical Society, January 15, 1935.



strated. Syphilitic latent lesion is usually found in the myocardium fifteen to twenty years following primary lesion. Dr. Warthin states that the hearts of practically all latent syphilitics show latent lesion in the myocardium. He states in general that "a cardiac death is the most frequent form of death for latent syphilitic and that a very large proportion of the deaths that occur in middle life from so-called myocardial degeneration are in reality myocardial insufficiency due to the changes resulting from latent syphilis."

"In the examination of fifty hearts from asylums, cases of paresic latent syphilitic lesion were present in all." In the majority of cases there is associated aortic valve lesion, usually aortic insufficiency. Syphilitic lesion does not affect the mitral valve, always the aortic valve.

The writer agrees with Egleston in that syphilis is the only chronic specific infection which is a common cause of myocarditis. For years pathologists believed the aorta to be the site of the more important pathological changes in syphilis of the vascular system. It is now generally accepted that both the aorta and myocardium are affected.

*The effect of pneumonia on the heart muscles:* Pneumonia, either lobar or bronchial in type, adds an additional burden or strain upon an already weakened or diseased heart. With this additional load placed upon an already diseased heart, a heart that has used up its reserve, the heart may fail to meet the demands required to maintain an adequate circulation. As a result the patient dies of heart failure. At autopsy you will find a large dilated heart. However, "pneumonia itself does not cause heart disease except in rare instances when acute bacterial endocarditis or a septic-pericarditis occurs, and is always a fatal complication. Although at post-mortem examination the heart muscle cells may show some change like cloudy swelling. Such a finding does not indicate heart disease."

A pneumonia patient with a perfectly normal, healthy heart does not die of heart failure.

Enlargement of the heart is the most frequent of all myocardial abnormalities. Enlargement of the heart may be due to hypertrophy, dilatation, or both. Hypertrophy of the heart consists of the increase in the size of the individual muscle fibres, not an increase in number, and is of a physiological phenomena.

The size of the heart varies in healthy individuals. The size and weight of the heart muscles are in comparison to those of the somatic muscle. The taller and stronger the man, the bigger and heavier is the heart. The heart is heavier in those who engage in heavy work or exercise, than in those who live a sedentary life.

Cause of hypertrophy is "due to increase work thrown upon the heart through a persistent high blood pressure, valvular disease, coronary obstruction or adherent pericardia, hyperthyroidism, a severe anemia." There are many cases of hypertrophy of the heart in which during life and after death no cause of increased work can be discovered. Dilatation of the heart is a very common condition, generally occurring with hypertrophy, as a part of cardiac enlargement. By dilatation is meant an increase in the size of the heart chambers, due to overstretching of its wall from weakening or atonic state of the muscle, or to the response to physiological demand for an increased output of blood per beat, as in exercise or in compensation for valvular disease. If the cause of acute dilatation ceases, the heart regains its normal size.

I'll pause here for a brief discussion of the effect of the so-called heart strain on the myocardium. For a long time it was thought that the healthy heart suffers strain as an immediate result of strenuous or prolonged bodily exercise. The idea seems to be that the heart may be injured by prolonged and severe exercise of the body. This idea conforms with and forms part of the more general and long-held conception that heart failure results mainly from the heart being overburdened by work.

In discussing heart strain it should be remembered that the strain of weight lifting or other strenuous acts or violent exer-

cise never falls directly upon the heart, but falls immediately upon muscle, tendon, and bone.

The load on the heart is increased from increased rate, increased output, and raise of blood pressure. It is now generally recognized that any increase in the size of the normal heart as the result of violent exercise disappears promptly when exercise stops, for no enlargement has ever been found after exercise stopped, since great dilatation on the heart during exercise would certainly have been detected in the many fluoroscopic examinations that have been undertaken. But it is quite probable that it dilates within certain limits which are to be regarded as physiological. "There is ample proof in which the healthy or normal heart becomes greatly destined for a shorter or longer period without undesirable aftereffects. A simple instance is where the heart is dilated by inspiring deeply with the glottes closed. In this experiment, inspiration is maintained, the heart on the X-ray screen is seen to dilate very greatly; yet this experiment can be performed again and again by healthy men with impunity."

*Paroxysmal tachycardia:* The attack in which the heart is beating perhaps at 200 beats per minute continuing for many hours or days. The patient's heart becomes so dilated that the impulse may extend into the midaxillary line, veins on the neck extensively engorged, liver may extend down to the navel, countenance cyanotic. When the attacks stop the patient experiences immediate relief. The heart resumes its original size after only a few beats. The remaining symptoms soon disappear. The signs of engorgement disappear with remarkable quickness. Repeated attacks impose no recognizable injury on the heart, yet the dilatation is far greater than that which occurs from violent or prolonged exercise. It is known that an increase in the amount of its work causes hypertrophy of muscles, whether somatic or cardiac, but is physiological, and does not constitute disease. It is true that athletes develop a slight physiological hypertrophy, but there is no real grounds for the belief that the

heart becomes diseased. It has been proven that mortality from heart disease is no greater among athletes than the rest of the population. It has been proven that the mortality from heart disease in racing dogs, racing horses, or racing men is not any higher than those that do not race.

It is reasonable to conclude that the burden imposed by physiological acts upon the normal heart never injures heart muscle fibres, "never produces injurious dilatation, and never exhausts the heart reserves, or produces heart disease."

One of the most common and important of all types of heart disease is that due to systemic hypertension. Not only is it a common condition the whole world over, but it is often very serious, and is frequently followed by congestive heart failure and death. It has been estimated that 60 to 70 per cent of individuals with so-called essential hypertension are destined to develop myocardial insufficiency and die of heart failure. About 20 per cent of hypertensive patients succumb to a cerebral accident hemorrhage or thrombosis, and approximately 10 per cent only die of renal insufficiency. In other words, heart failure is by all odds the most likely destiny in patients with hypertension.

*Etiology:* The cause of hypertensive heart disease is high blood pressure, but the cause of high blood pressure is not definitely known, and many theories have been advanced to explain it.

I shall not take space or time for a discussion of any of the many theories that have been advanced as to the cause of high blood pressure, but shall confine my remarks to its effect upon the heart muscles. The hypertensive heart fails for two chief reasons: (1) It carries a much greater load than a normal heart; sooner or later it becomes exhausted and ultimately fails; (2) the blood supply to the heart wall is often impaired by sclerosis of the coronary arteries. The associated coronary disease is frequently the most important factor, determining the clinical features. Thus some hypertensive patients may have anginal seizures and attacks of coronary thrombosis, others run a progressive down-



hill course, and die from congestive failure, and at autopsy one finds extreme myocardial fibrosis which is secondary to coronary disease.

The period of time that the patient is able to carry on depends chiefly on the state of the coronary arteries. Since this factor is a variable one, one sees at one extreme patients with hypertension able to lead fairly active lives for many years, at the other the individual succumbs rapidly to heart failure.

*Pathology:* Chronic heart disease developing after the age of 40, due to a primary failure of the heart muscles and unassociated with valvular defect, is generally termed chronic myocarditis. Contrary to a prevalent conception there is no inflammation; in other words, there is no actual myocarditis or myocardial degeneration in uncomplicated hypertensive heart disease, even in large hearts. With marked congestive failure, endocarditis and pericarditis do not occur primarily in this type of heart disease.

The pathology of hypertensive heart disease is very simple. Hypertrophy of the individual muscle fibres of the left ventricle is always present, due to an increased amount of work thrown upon the left ventricle.

The heart is, as a rule, heavier than normal, at times weighing as much as a thousand grams. Most of the increased weight is due to thickening of the left ventricle. With onset of failure the left ventricle as well as the other heart chambers undergoes more or less dilatation. The mitral ring is widened, and a relative mitral insufficiency results, which is manifested by a blowing systole murmur at the apex.

Such changes as are found microscopically, patchy areas of fibrosis and slightly infiltrated with lymphocytes and plasma cells, are secondary to associated coronary disease. In other words, the pathological findings in the hypertensive heart are those of an organ which has withstood a long siege. It often doubles in weight or triples in an attempt to maintain circulation in the face of great odds. Sooner or later its reserve

is exhausted, and we see the appearance of peripheral circulatory failure. Under these circumstances it is not necessary to involve a chronic inflammatory process in the myocardium to explain the heart's exhaustion. The wonder is not that the average hypertensive heart fails, but that it carries the load as long as it does.

*Symptoms:* So long as the heart is able to meet the demands of an elevated blood pressure there are no symptoms of hypertensive heart disease. The first and most common symptoms of early failure is dyspnea, on exertion, a slight swelling of the ankles toward evening, often ascribed by the patient to rheumatism, old age, or overweight. Another prominent symptom of hypertrophy heart failure is nocturnal attacks of dyspnea lasting about one hour, sometimes called cardiac asthma. These attacks vary widely in severity. In mild ones the patient may be awakened by a paroxysmal cough or a sensation of smothering. He may sit up in bed, bring up a little viscid mucus and fall asleep again. In severe attacks, dyspnea may be extreme, the breathing noisy, and the face cyanotic. Paroxysmal coughing may bring up the characteristic pink frothy sputum of pulmonary edema.

*Premature beats:* Paroxysmal, tachycardia, auricular fibrillation are common disturbances in hypertensive heart diseases, but not characteristic. A constant sign of hypertensive heart disease is cardiac enlargement due mainly to left ventricular hypertrophy. If there is no increase in heart size, even though hypertension is present, we cannot label the condition hypertensive heart disease. Blood pressure generally remains high, but at times, either because of heart failure, or general vasomotor collapse, or in some cases apparent as the result of treatment, it may fall to normal, leaving obscure the cause of cardiac enlargement and failure, unless knowledge of previous hypertension.

The diastolic pressure in such cases may be maintained at a somewhat high level, even though the systolic pressure has fallen to 150 or below. This relatively high dias-

toxic pressure and low pulse pressure may reveal the previous hypertension.

Finally, as mentioned above, coronary arteriosclerosis is frequently associated with hypertension, and, therefore, may at any time dominate the clinical picture with attacks of angina pectoris or coronary thrombosis.

*Conclusion:* 1. Hypertension is the most frequent and the most important factor in causing chronic heart muscle disease often called chronic myocarditis.

2. About 75 per cent of all cases of chronic heart muscle diseases are associated with hypertension.

3. Chronic or acute infection plays a minor role in the production of heart muscle disease. Syphilis infection being the only infectious disease which may cause a diseased myocardium.

Approximately 124,000 persons in the United States die of hypertensive heart disease every year.

Attend the

102nd Annual Meeting

TENNESSEE STATE MEDICAL  
ASSOCIATION

April 9, 10, 11

Nashville



## ANALYSIS OF ABDOMINAL PAIN\*

A. L. RULE, M.D., Knoxville

**A**BDOMINAL PAIN is always significant of some pathological condition. The location of the pain, its character, its manner of onset are of vital importance, the time of day or night may be of valuable aid. The incidents occurring before or after meals may be very important. Is vomiting present? If so, what is the character of the vomitus? Is it food, blood, mucus, or fecal material?

If the vomitus is food, it may be due to some undigested product which is rare. If blood, we expect a more serious pathological condition as a perforated gastric or duodenal ulcer. Blood is always an indication of some serious condition if it is accompanied with severe pain, nausea, and vomiting of blood with marked rigidity, anxious expression, with maybe frequent bloody stools accompanying the vomitus. We most surely would have a perforated ulcer if blood exists with vomiting and passing of bloody stools; without pain we may have simply a ruptured blood vessel either in the esophagus, stomach, or duodenum.

If the vomitus is bile, we expect to locate the trouble in the region of the gall bladder. This is usually accompanied by previous history of gall-bladder involvement. The age of the individual is usually that of a middle-aged person or an elderly person. If the vomitus is fecal material, the first impression, of course, would be an intestinal obstruction. This usually occurs after the individual has been sick for twenty-four or more hours, and usually a definite mass is made out somewhere in the abdominal cavity. This is usually accompanied, particularly if the obstruction is low down, by bloody stools. This may be accompanied in the beginning with severe pain; but, after a short time, the pain may subside, and the only prominent feature would be the vomiting. This is not unlike a ruptured

ectopic tubal pregnancy, except as to the location of the pain, which is in the lower abdominal region. Where is the point of maximum tenderness, or do you have tenderness? If not, does it mean anything to you? Are the muscles rigid? If so, where is the maximum point of rigidity? What does it mean to you?

You hear of so many people dying from acute indigestion. Do we have acute indigestion? Yes. Does it kill? Never. Then, if not, what is it that is referred to the abdomen that causes immediate death? Is it angina? Most likely, unless it is an abdominal aneurism, which has ruptured. There is a very acute pain starting in the back, radiating to the loins, sharp cutting coming at short intervals, later bloody urine, and finally, after an hour or so, or maybe one to ten days, a stone is passed. This does not affect temperature but little, and rarely causes an increase in pulse rate.

There are many other intra-abdominal conditions, such as a ruptured spleen, mesenteric thrombosis, ruptured pancreas, which present a picture of many of the above symptoms. These are rare in proportion to the other major abdominal catastrophes. There is one other which I think is more important than anything yet mentioned, and that is the appendix. Notwithstanding all the research that has been done on this particular organ, the death rate has not been lowered. It attacks all ages, young, middle-aged, and the aged. There are no certain symptoms that can always be relied upon.

The pulse is no certain guide; certainly the temperature is little guide; it may be subnormal, normal, or a slight elevation. The pulse may be little affected, rigidity is usually present, but may be entirely absent, depending on the location of the offending organ. Vomiting, if present, may signify impending danger. If absent, don't forget the presence of a silent gangrenous

\*Read before the Knox County Medical Society, January 22, 1935.

appendix hidden away where little pain is manifested.

Pain, rigidity, and tenderness signify a typical appendix. A diverticulitis may be present. A retrocaecal appendix is at times very difficult to determine, the pain is usually referred to the loin or back. In this type, you may or may not have any of the typical signs of abdominal pathology. Vomiting is usually present and may per-

sist and remain until operative interference relieves the individual.

In this brief paper, I have discussed only a few of the most common conditions. We have left out many things that could be discussed at length. If I have said anything that will help you in any way to meet and recognize these abdominal conditions, the purpose of my message is fulfilled.

Write for Reservations at the

## NOEL HOTEL—NASHVILLE

102nd Annual Meeting  
April 9, 10, 11

Tennessee State Medical Association



## THE NERVOUS PATIENT\*

JESSE C. HILL, M.D., Knoxville

**A**T THE BEGINNING of this paper I want to emphasize two important facts: First, there are two classes of nervous patients—the physically sick nervous patient and the physically well nervous patient; second, every nervous patient should be considered potentially a mental patient until the physical factors are worked out showing the trouble entirely due to a physical condition.

### THE NERVOUS CHILD

There is a common opinion that the child of today is a nervous wreck, that the fast age plus other factors is responsible for the change. Many of the pseudo-child welfare workers and social workers want the public to believe it, and advertise it just as the patent medicine man does his remedies. If you analyze the three organizations they have the same basic principle in view.

Now get this. The child of today is not so nervous as the child of twenty-five and fifty years ago. Where are your night-walkers? Where are your somnambulant night acrobats? Where are your so-called worm spasms? Where are your teething tantrums? Where are your bed wetters? Where are your talkers in their sleep?

I say to you these nervous reactions are rare today. The point is this, the child has a better physical and mental nervous system in him today than ever before. The medical profession is largely responsible for it.

Now get this next point. Every piece of machinery, every business organization, every political organization, every religious organization must have a control. It may be mechanical, physical, or mental; but, if the end results desired are obtained the control must be there, and the control must be from within or from without.

Now get this next point. We have the child. Its constitutional make-up contains

all that it takes to make a bright, happy, intelligent child and a future citizen worthy to mingle in society. But to obtain said results there must be the control, and it must be from the outside until judgment is developed sufficiently to transfer it to the inside. So today we have no inferior child. We have no constitutional nervous child. The trouble is that the control is not working properly and needs some readjustment. The outside control must start early in the home by the parents or by someone designated by the parents who has the future welfare of the child at heart. If same cannot be obtained in the home the child should be removed, taken from parents, relatives or friends, if necessary, and placed under the control of a real Christian child welfare organization which we have not today, but hope to have in the future—one that has the child's interest really at heart and not one catering publicity. I have mentally examined hundreds of children for the Juvenile Court of Knox County during the past eighteen years, and from my observation I am of the opinion, and I am sure that Judge Webster of said court will agree with me, that, by proper control as stated in this paper, 80 per cent of the hundreds of cases examined would never have been brought before this honorable court.

### THE NERVOUS STUDENT

I would include under this heading the backward child caused by a slightly deficient mental make-up or a reaction from a physical defect. We have our alert school physicians who by their untiring efforts are rapidly eliminating the last class but the first class is the teacher's problem. A very alert teacher of years' experience can readily judge the child with a deficient mental make-up. It is the general belief that retarded children should be put in a class by themselves, but in my opinion that is the wrong thing. There is a stigma put on them, and they and their parents are great-

\*Read before the East Tennessee Medical Association, Maryville, September 25, 1934.

ly embarrassed. I believe the best way is to let the children go along with the others, if possible, and, should they fail to make their grades, pass them anyway and graduate them with the others. They will feel good and also maintain their social level. Statistics prove that a large per cent of backward children and those of a slight degree of mental deficiency obtain useful occupations, have honorable homes, and make useful citizens. They realize just what they can do, and most of the time they do it well. I know many marked feeble-minded patients who were inmates of the Eastern State Hospital in my seventeen years' stay there that under proper supervision were very valuable assets to the institution and worked thousands of dollars worth of labor for the state. Many of these same patients could have lived on the outside under proper control and sterilization.

I know of mentally deficient doctors, lawyers, preachers, bankers, and business men who are making or have made a success, and are valuable assets to the community. They were backward children in school with an inferior complex, but not ostracized.

Now a word about the nervous university student. I have had several university students as patients, and in practically every case I found that psychology, as taught by the advertising for notoriety, pictures in the papers, university professors, is the basic acute factor of their nervous or mental condition. I do not believe psychology should be taught as a regular study in any regular course in a university curriculum, but should only be taken up in postgraduate courses after the student is old and mature enough to apply it sanely to self and life. There is so much "baloney" and so little common sense as it is taught and applied today. I would not say or even intimate that the majority of psychology teachers are subconscious; but just observe them, and probably we all would be like them if we imagined as much as they do, and spent our lives in the subconscious mind.

#### THE NERVOUS ADULT PATIENT

This is the patient that the physician comes in contact with. Practically every

nervous patient is a mild or marked mental case if the physical factor has been eliminated. Again I will repeat the two classes of nervous patients. First, the nervous physically well patient, and second, the nervous physically sick patient. The second type is the favorable type, and a large per cent can apparently be cured. The first type cannot be diagnosed until the second type is eliminated, and the prognosis of the first type is very unfavorable as to a complete cure, but a large per cent of them can adjust themselves to society, and the remainder become resigned to institutional control. The reason the physically sick nervous patient frequently is not cured is because the doctor is too lazy to take the time to find out what the trouble is, or he is not qualified to do so. A doctor may have many degrees and enough money to put himself in the elite society, visit the foreign countries, play golf, fish, hunt, act wise and look wise and put on the dignity of an English lord (at the same time having only a monetary interest in his patient), and be as ignorant as the man whom Solomon's dog bit in the gluteal region. The studious, alert, qualified, common-sense, honest-to-goodness doctor will go into every corner of these cases and obtain results.

Now let's get to the facts. What can be done about these patients, the nervous patients? The general practitioner is in position to do much. First, tell the patient he is sick. There is something causing every symptom he has (you will be telling the truth), and you can cure him. But he must go strictly according to your directions. You are not telling a lie, because a lie is a statement made by one individual with the purpose of hurting another individual, and in the above instance your purpose in making such a statement is to help the individual. Second, take the history of the patient, send patient home, telling him you want to study over his case and for him to return to your office in three days. Then honest-to-goodness study his history. Third, when patient returns, do your physical, neurological, and the remainder of your psychiatric examination. Have laboratory, basal metabolism, and cardiograms



made if necessary. Fourth, send your patient home, telling him to return in a week, that you must have further time to study the case. Fifth, patient becomes interested, and knows you are going into the case slowly and thoroughly, and is very anxious about the definite findings. Sixth, combine your history, physical, laboratory, and other special examinations and study them carefully. Seventh, decide whether patient is a sick physically nervous mental case or a well physically nervous mental case. Eighth, if you decide and have the evidence that the patient belongs to the first class, correct the physical defect as far as possible and a large per cent will completely recover, and practically all the remainder, probably eliminating 8 per cent, will continue to live out of an institution, and most of the 8 per cent stated above have damage beyond repair due to syphilis. Ninth, if

you decide and have evidence that the patient belongs to the second class, put the patient under control in the home and put them through a certain routine of habits, recreation, diet, vocational training, and discipline, modify same according to each individual patient, and a large majority will adjust themselves to life and make useful citizens. The small per cent that do not adjust themselves to above treatment must be placed in an institution where they will be under a more strict discipline and mandatory training. After receiving said treatment many of the hospital cases are able to leave the institution and adjust themselves to society. On leaving the institution they should be given a special prescription to have filled when they get home, and that is sterilization; or same may be done before they are discharged.

Plan to Attend the 102nd Annual Meeting

## TENNESSEE STATE MEDICAL ASSOCIATION

April 9, 10, 11

Headquarters—NOEL HOTEL—Nashville

## A GENERAL CONSIDERATION OF DISEASES OF THE THYROID GLAND\*

N. S. SHOFNER, M.D., Nashville

**I**N A DISCUSSION of the diseases of the thyroid, as in all other diseases, it is helpful at the outset to classify the various types of disease affecting this organ. This I have done, attempting to differentiate between the pathological manifestations primarily, with additional descriptive subheadings.

The classification is as follows:

1. Simple goiter
  - (a) Adolescent
  - (b) Smooth
  - (c) Nodular
2. Hyperthyroidism
  - (a) Smooth gland
  - (b) Nodular gland
3. Hypothyroidism
  - (a) With goiter
  - (b) Without goiter
4. Thyroiditis
5. Malignancy
  - (a) Carcinoma
  - (b) Sarcoma

### SIMPLE GOITER

Simple goiter may be defined as any enlargement of the thyroid gland without disturbance of the secretory function.

Into this group fall the adolescent goiters so frequently seen in children from just before puberty until the age of fifteen or sixteen. They occur more frequently in girls, and are far more common in the so-called "goiter belts" about the Great Lakes region, the Northwest territory, and to a lesser degree in other mountainous regions. The enlargement is believed to be a physiological response to the increased demand for thyroid secretion during the period of change from childhood to womanhood or perhaps manhood. Ordinarily, it disappears with the establishment of the adult sexual cycle, but it is helpful to administer small quantities of iodine to these children during the critical years referred to. A

very satisfactory method of administering the drug is through the use of chocolate-coated tablets containing about 1/10 grain of iodine. There are several such preparations put out by the pharmaceutical houses under various trade names, such as Stearodin, Iodo-Stearin, etc. It is easy to remember to take one tablet each Sunday morning just before getting the pennies for Sunday school. A small number of these goiters will persist in spite of treatment, and will develop into adult goiters.

Coming now to the adult types of simple goiter, we have the smooth and nodular varieties. These are merely descriptive terms, but there is an important reason for differentiating them, to which I shall refer presently.

The smooth goiter is merely a hypertrophy of the glandular structure with an increase of colloid. Unless it enlarges to a marked degree and produces pressure, it is of no significance to the patient's health. In a woman it may be the cause of embarrassment from a cosmetic point of view.

The response of these glands to iodine is negligible, and there is some danger of activating the gland to produce hyperthyroidism if iodine therapy is persisted in.

Surgery is indicated in case of disfigurement of the neck and in discomfort from pressure.

The treatment of this type of goiter may be summarized by stating that it should either be resected or let alone.

The nodular type of goiter gives rise to an entirely different problem from that of the smooth type, and this is the possibility of the development of malignancy in the nodule. There is some difference of opinion as to the origin of these nodules. All pathologists are agreed that there is such a thing as a true adenoma, or tumor, of the thyroid gland. The difference of opinion arises as to the frequency of occurrence of true adenomata. Many pathologists call all nodules of the thyroid adenomata. Others,

\*Read before the Middle Tennessee Medical Association, Lawrenceburg, November 8, 9, 1934.



led by Reinhoff, of Johns Hopkins, and Graham, of the Cleveland Clinic, believe that only the so-called fetal adenoma is a true adenoma, and that all others are merely localized areas of hyperinvolution following a previous stage of hyperplasia of glandular elements. I am not prepared to settle this question, but the point which impresses me is that all pathologists and surgeons agree that 95 per cent of malignancy of the thyroid gland arise in previously nodular glands. They further agree that approximately 10 per cent of all fetal adenomata become malignant. Naturally, not all nodules of the thyroid are fetal adenomata, but I believe it is impossible to pick out such adenomata with certainty preoperatively and to say with assurance that an individual nodule is or is not a fetal adenoma. Consequently it is advisable to remove all distinctly nodular goiters in order to remove all possible sources of thyroid malignancy. Iodine has little, if any, helpful effect upon the nodules, and some cases have been converted into hyperthyroidism by its use.

Continuing the discussion of simple goiter, I wish to mention the glands which enlarge downward into the thorax, the so-called intrathoracic goiters. Fairly often a nodule of the lower pole descends below the clavicle or sternum, and after its descent grows to enormous proportions. The resultant pressure upon the recurrent laryngeal nerve and distortion of the trachea produce marked respiratory disturbance and necessitate operative removal. This type of case presents the surgeon with perhaps the most difficult technical problem in thyroid surgery, due to the danger of recurrent laryngeal nerve injury and mediastinal hemorrhage in case the vessels entering the capsule of the gland are torn by undue roughness in operating.

#### HYPERTHYROIDISM

As descriptive terms, I have divided hyperthyroidism into smooth and nodular types.

In these cases, for years, there has been a controversy in regard to the classification. One school of thought, led by Plummer, of

the Mayo Clinic, believes that there are two distinct entities, exophthalmic goiter and toxic adenoma. The theory is that exophthalmic goiter is produced largely by a faulty thyroxin molecule in which one of the iodine atoms is missing. According to this belief, exophthalmic goiter is really a dysthyroidism. The toxic adenoma is regarded as merely an oversecretion of normal thyroxin, or a true hyperthyroidism. The other school of thought, led by Crile, of Cleveland, believes that so-called exophthalmic goiter and toxic adenoma are one and the same disease, and that there is no adequate basis for constant differentiation. Each side has its adherents. I shall not go into all phases of this controversy, but shall state that to me the second opinion appears more reasonable in the light of my own experience, and I prefer to refer to these cases as hyperthyroidism without further differentiation other than as to the physical appearance of smooth and nodular, and I shall discuss the disease without further reference to this question.

Hyperthyroidism may be defined as a syndrome referable to an increase of thyroid secretion, namely thyroxin, and manifested by various phenomena produced by the consequent increased metabolism. When this definition is kept in mind, it is perfectly easy to understand the manifestations of the disease. It must be remembered that here, as in other diseases, certain symptoms predominate in certain cases and are inconspicuous or even absent in others.

The outstanding symptoms of hyperthyroidism are tachycardia, nervous instability, tremor, loss of weight and strength, increased appetite, increased sweating, and commonly periods of nausea and vomiting and diarrhea. Examination usually reveals enlargement of the thyroid gland, which may be symmetrical and smooth or nodular. In about 15 per cent of cases, there is a thrill and bruit present over one or both superior poles. The skin of the neck may be flushed. Examination of the heart reveals tachycardia and usually an increase in the force of the precordial impact. Unless there is other cardiac diseases present, there is no heart murmur, but the sounds

are all increased in intensity. The skin is warm and moist. There is fine and coarse tremor of the extended fingers, and often there is moderate edema of the lower extremities, where there is a beginning cardiac decompensation. The temperature is often slightly elevated a degree or more, depending upon the severity of the disease. This point should be emphasized since the presence of fever sometimes causes confusion in the mind of the physician with common febrile diseases. Fever, usually of moderate degree, but extensive in a crisis of the disease, is distinctly a part of the picture of hyperthyroidism in a great many cases.

Exophthalmos may or may not be present, and it varies in degree. Of great diagnostic import is the presence of a peculiar stare more often present than true exophthalmos. I wish to emphasize that, although exophthalmos is almost conclusive of hyperthyroidism, its absence does not by any means exclude the diagnosis of hyperthyroidism. It is present in not more than 15 per cent to 20 per cent of cases.

The only laboratory procedure of value in diagnosing this disease is the basal metabolism rate which is increased in hyperthyroidism. This test is always interesting, but is not necessary in clearly defined cases. Its greatest usefulness is found in differentiating the mild cases of hyperthyroidism from other confusing conditions, especially neurasthenia and early pulmonary tuberculosis.

The blood pressure in hyperthyroidism is characteristic. There is almost always an increase in the pulse pressure. The systolic pressure is likely to be elevated without corresponding elevation of the diastolic pressure. I have often seen the systolic pressure normal with a lowered diastolic pressure. Almost always the difference between systolic and diastolic pressures is more than 50 mm.

The diseases with which hyperthyroidism is most commonly confused are neurasthenia, tuberculosis, and occasionally diabetes. Of these conditions neurasthenia is the most difficult to eliminate. There are certain points of difference in the findings

which should be emphasized. First, in hyperthyroidism the appetite is usually increased, whereas in neurasthenia it is poor. In hyperthyroidism there is a general increase in sweating and the skin is warm and moist, whereas in neurasthenia the sweating is mostly confined to the hands and feet which are cold and clammy. The pulse pressure in hyperthyroidism is increased above 50 mm., whereas in neurasthenia the pulse pressure is always less than 50 mm., and both systolic and diastolic pressures are low.

The basal metabolism is increased in hyperthyroidism and normal in neurasthenia.

Tuberculosis is eliminated by the history of increased appetite in hyperthyroidism, in physical examination, and by the B. M. R. and X-ray of the chest.

Diabetes may be confusing because of the loss of weight and strength in the presence of a good appetite. The urinalysis and B. M. R. should clear up this point. It must be remembered, however, that occasionally a low sugar tolerance exists in hyperthyroidism, and glycosuria may periodically appear. The presence of one of these diseases does not exclude possibility of the other. I have seen a few cases of hyperthyroidism with glycosuria cured of the glycosuria by thyroidectomy, when they had not been improved by diabetic treatment.

The treatment of hyperthyroidism is partial thyroidectomy, after a period of preparative treatment with Lugol's solution ten drops three times a day after meals, rest in bed, adequate sedation with barbiturates or bromides. Usually ten days to two weeks of this regimen will improve the patient to a point where operation is safe.

I shall not discuss details of the operation, but shall mention only a few features of general interest. First, local anesthesia, or local combined with gas-oxygen, is safer than ether anesthesia. Second, an effort is made to remove all the thyroid tissue except a narrow posterior margin overlying the recurrent laryngeal nerves and parathyroid glands. This bit of tissue is left to protect these important structures and is enough to maintain a normal thyroid balance. Occasionally a mild hypothyroidism



develops postoperatively, but this is readily controlled by substitution therapy. If much tissue is left there is great danger of recurrence of hyperthyroidism.

Recently I reviewed 387 cases of hyperthyroidism upon whom I had operated during the previous seven years, and found the following results—

Good, 350, or 91.7 per cent.

Fair, 31, or 7.6 per cent.

Died, 3, or 0.7 per cent.

Recurrence, 3, or 0.7 per cent.

Following discharge from the hospital, these patients are urged to follow a strict regimen including much rest and avoidance of excitement for four months. This should be observed under the family physician, and is of greatest importance for complete recovery.

#### HYPOTHYROIDISM

Hypothyroidism is a condition in which there is a decrease in the normal amount of thyroid secretion. It gives rise to a clinical picture which is usually the opposite of that of hyperthyroidism. The outstanding symptoms are lack of energy, sluggishness, increase of weight in spite of a normal or decreased appetite, and often there are vague nervous phenomena such as irritability and inability to concentrate. On examination the temperature is a little subnormal, the pulse rate is slow, and the blood pressure is low, both systolic and diastolic. The skin is dry, and there is a rather firm edema of the lower extremities and face. There is often loss of hair. The thyroid gland may be of normal size or enlarged.

The clinical picture is not so clear-cut here as in hyperthyroidism, and the basal metabolism is of greatest importance in making a diagnosis. In fact, I do not think the diagnosis can be made positively without the B. M. R.

The treatment of this condition is by the oral administration of desiccated thyroid, although some physicians prefer thyroxin. It is safest to begin treatment with small doses, say one-half grain t.i.d., and to find out by trial and error just what the individual requires. Occasional repetition of the B. M. R. is advisable, since it is possi-

ble to produce hyperthyroidism if desiccated thyroid is given without careful observation.

#### MALIGNANCY

As noted above, 95 per cent of malignancies of the thyroid occur in previously existing nodules. Carcinoma is far commoner than sarcoma, though the latter occurs often enough to be of importance.

The outstanding sign of malignancy is the sudden growth of a previously existing nodule, which has been stationary in growth or growing slowly for years. Examination reveals a hard, usually fixed tumor, which may involve the recurrent laryngeal nerve and produce hoarseness.

The conditions with which they may be confused are adenomata with cartilaginous or calcareous deposits and thyroiditis.

Sarcoma cannot be differentiated certainly from carcinoma preoperatively, but it is suspected by its extremely rapid growth. I have operated upon two sarcomas of the thyroid, in each of which I removed almost the entire thyroid. In each case the tumor recurred by leaps and bounds, and one patient died in thirty days and the other in thirty-two days. If I could be sure a tumor of the thyroid was sarcoma, I would never operate, since I consider it perfectly useless.

Carcinoma has a more hopeful prognosis, and I have one patient alive and well after eight years, another alive and well after six years, and another alive but not well after one year. The last case had broken through the capsule and, although I had him treated with X-ray, I am perfectly sure he is doomed. The two cases doing well after six and eight years, respectively, were early cases and not through the gland capsule. In general, it may be said that the time to cure malignancy of the thyroid is to remove nodular glands before they become malignant, if an Irish form of speech may be used.

#### THYROIDITIS

Thyroiditis is inflammation of the thyroid gland. It is usually secondary to infection elsewhere, at the tonsils or teeth, although not always can a focus be demonstrated.

This condition is fairly common, and usually produces moderate fever, tachycardia, pain, swelling, and tenderness of the neck. It usually subsides in three or four weeks under rest, sedation, and the application of heat or cold to the neck. Occasionally the inflammatory process is more insidious and more persistent, giving rise to a woody thyroiditis which causes great enlargement of the gland and marked fixation to surrounding structures. There is not much, if any, tenderness, and no fever. This type of enlargement may be confused with malignancy. The treatment of choice is resection of a portion of the gland to relieve pressure. The resection is not so extensive as in hyperthyroidism. The disease usually subsides after three or four weeks postoperatively.

#### SUMMARY

I have outlined above a general classification of diseases of the thyroid gland.

The treatment of adolescent goiter is small doses of iodine administration until the age of fifteen or sixteen years.

All nodular goiters should be removed, whether producing symptoms or not, as a prophylactic measure against malignancy.

Smooth simple goiters should be removed if they are producing pressure symptoms, or if the cosmetic effect is bad.

All cases of hyperthyroidism should be operated upon after adequate preparation, and should be carefully observed for several months after operation.

Iodine should be used in the treatment only of adolescent goiters and as a pre-operative measure in hyperthyroidism.

Ninety-five per cent of malignancies of the thyroid occur in nodular goiters. The only satisfactory attack on the question of malignancy of the thyroid is to remove all nodular goiters before malignancy develops.



# THE JOURNAL

OF THE

## TENNESSEE STATE MEDICAL ASSOCIATION

Devoted to the Interests of the Medical Profession of Tennessee  
Office of Publication, 510 Doctors Bldg., Nashville, Tenn.

Acceptance for mailing at special rate of postage provided for  
in Section 1103, Act of October 3, 1917,  
authorized July 15, 1932.

H. H. SHOULDERS, M.D., Editor and Secretary

MARCH, 1935

## EDITORIAL

### COMMUNISM BY DEGREES

Some events, institutions, and personalities have become so intimately connected recently that attention should be called to them.

The Milbank Memorial Fund was instrumental in promoting the activities of the Committee on the Cost of Medical Care. A majority of the committee recommended a modified form of communistic medicine.

Mr. John A. Kingsbury, Secretary of the Milbank Memorial Fund, made a brief trip to Russia. It is reported that it extended over a period of thirty days. He returned and in collaboration with an Englishman by the name of Sir Arthur Newcomb wrote a book, entitled, "Red Medicine." Their references to communistic medicine in Russia were very laudatory.

Recently Mr. Edgar Sydenstricker, an executive of the Milbank Memorial Fund, was made technical director for a medical service under the Committee on Economic Security appointed by the President.

While this Committee on Social Security has not yet recommended a specific plan for health insurance it has indicated its intention to recommend the adoption of a plan of health insurance in connection with its other plans for social security. In such a manner an institution and personalities connected with it, and certain personalities connected with the government, are connected up with a movement to jam communistic medicine down the throats of American citizens.

Mr. Sydenstricker would not sign the majority report of the Committee on the Costs

of Medical Care because he insisted it did not go far enough.

Some of these foundations have been parading under false colors. They have paraded as patriotic American citizens anxious to promote the social betterment of the race under the American flag.

It is becoming increasingly obvious that their real objective is the complete regimentation of the practice of medicine as one of the steps in the direction of establishing complete communism in America.

Most of those who would promote the doctrine of communism in America do it under the guise of social welfare. They evidently remember a phrase uttered by a Mr. Lenin himself to the effect that "complete communism cannot be accomplished at once. It must be accomplished *by degrees*." This phrase is taken from the book, entitled, "Red Medicine." The following is also taken from the book: "The Bolsheviki must resign to their leaders their intellectual liberty and abandon their right of private judgment."

In the name of child welfare and in the name of general social welfare and in the name of better medical services, these personalities and agencies would drag down the American flag. They would drag down American medicine and set themselves up as the agencies to which we doctors and patients would sacrifice our "intellectual liberties and the right of private judgment."

Recently it has come to light that there is an organized attempt to establish communism in America. It is alleged to have extended into the Navy. These people do not come out boldly and say "we stand for communism in medicine." Not at all. They proceed to disguise their purpose by stating in effect that *they would apply the principles of insurance to the problems of medical care*, but they fail to follow through the principle of insurance in their tentative suggestions on the subject. They propose to collect premiums from employes, employers and from the government. They propose to pay out certain cash benefits in the event of illness or unemployment, but they propose to

reserve the power and the right to set up an agency in whatever districts they might create for the purpose of administering medical care, and by that movement bring the insured population and the doctors under the domination of these bureaucratic agencies.

If they were perfectly fair and honest in their intentions they would provide for the payment of a cash medical benefit to the insured who would retain their intellectual liberties in expending the benefit for medical care in their own way. The insured and the agencies rendering care would retain their independence.

Nobody has a higher respect and regard than we doctors have for many of the persons and the agencies engaged in social welfare activities, but no one could possibly possess a greater contempt for the menacing influences, agencies and persons which are attempting to parade themselves and their false doctrines under the guise of social welfare. It is high time the public drew distinctions. There is nothing new about a "wolf appearing in sheep's clothing."

#### HEALTH INSURANCE

The House of Delegates of the American Medical Association was called into extraordinary session February 15, 1935, at the request of the Board of Trustees for the purpose of considering "the social and economic policies of the association as relating to pending and proposed legislation, to sickness insurance, and to other matters which may be submitted by the Board of Trustees."

On another page of this issue will be found, first, an official statement to the House of Delegates by the Board of Trustees for the special session (see page 118), and, second, a report of the actions of the House of Delegates on the matters presented.

The report of the Reference Committee of the House, which was adopted unanimously, constitutes *an official statement of the policy of the association on all the matters embraced in the report.*

The following is a brief summary of the more important developments that have taken place recently:

The subject of health insurance has been before the public more or less actively since the report of the Committee on the Costs of Medical Care was released in 1932.

The House of Delegates of the Tennessee State Medical Association took action condemning the proposals made in the majority report of that committee.

In June, 1934, the President of the United States announced his intention to propose legislation for the greater economic security of the people of the United States. In order to aid him in the development of these plans a committee was established consisting of Frances Perkins, Secretary of Labor; Morgenthau, Secretary of the Treasury; Cummings, Attorney General; Wallace, Secretary of Agriculture; and Harry Hopkins, Director of Relief.

This committee in turn set up a technical advisory staff with an executive director.

This technical staff was divided into about thirteen divisions for the consideration of such subjects as old age, unemployment, maternal welfare, child welfare, hospital care, *medical service*, and public health service.

Mr. Edgar Sydenstricker, an employee of the Milbank Fund, was made technical director for *medical service*. Incidentally, it may be observed that this man objected to the majority report of the Committee on the Costs of Medical Care because it failed to go far enough in the direction of the complete socialization of medicine.

The deliberations of these committees have been conducted, very largely, in secrecy.

The Committee on Social Security made a report to the President, which report he incorporated in a message to the Congress.

Of sickness insurance, the President said specifically, "I am not at this time recommending the adoption of so-called health insurance, although groups representing the medical profession are cooperating with the federal government in the further study of the subject, and definite progress is being made."



It should be noted that the Committee on Social Security selected the doctors who are collaborating in the work of the committee. Organized medicine was not requested to name the doctors who would "cooperate."

In its report, the committee further said concerning medical services, "The second major step we believe to be the application of the *principles of insurance to this problem*. We are not prepared at this time to make recommendations for a system of health insurance. We have enlisted the cooperation of advisory groups representing the medical and dental professions and hospital management in the development of a plan for health insurance which will be beneficial alike to the public and the professions concerned. We have asked these groups to complete their work by March 1, 1935, and expect to make a further report on this subject at that time or shortly thereafter."

Furthermore, the Committee on Social Security in its report indicated that the part the national government should play in a scheme of health insurance would be that of subsidizing states with federal funds, *provided the state plans meet federal standards*.

A social security bill was introduced by Senator Wagner, of New York. It sets up a social insurance board composed of three persons appointed by the President to be a part of the Department of Labor. This board is authorized with the approval of the Secretary of Labor to appoint and fix compensation of all officers, attorneys, and experts needed without regard to civil service laws. Other provisions in this bill carry out the idea of a federal subsidy for state plans for social security, provided the state plans conform to federal standards, and these standards, in so far as we are informed, would be fixed by the board of three created by the Wagner Bill, and no provision is written into the law concerning their qualifications.

In addition to the Committee on Social Security, appointed by the President, another organization, called the American Association for Social Security, has been at

work preparing a bill to be introduced into the various states.

It is not known whether any members of the Committee on Social Security appointed by the President inspired the activities of the American Association for Social Security. However, it is a fact that the latter organization is now sponsoring legislation commonly known as the "Epstein Bill" for health insurance.

The legislation bears the name of "Epstein" because Mr. Epstein is the executive director of the so-called American Association for Social Security.

As has been stated in previous editorials, the composition of this organization is little known. It is of very recent origin, but by reason of its name and its alleged purpose it seeks to obtain national attention.

The Epstein Bill has been introduced in the legislature of a number of states already.

It is reasonable to assume that the provisions of this bill would meet the approval of the Insurance Board created in the Department of Labor by the passage of the Wagner Bill as drawn.

Certainly no member of the Committee on Social Security has condemned the provisions of the Epstein Bill in so far as we know.

Furthermore, a campaign of propaganda has been going on in an effort to popularize *health insurance* in the United States. Much of this propaganda is shrewdly done. It attempts to portray the medical profession as greedy and selfish, with no philanthropic spirit. It attempts also to portray the medical profession as widely divided on the question of health insurance. Just recently an article appeared in the magazine, "Today," which attempted to create the impression that just a few men in charge of the headquarters of the American Medical Association are opposing the adoption of health insurance in the United States. By propaganda these socialistically inclined persons attempt to create an impression that they are *tremendously in love with all* the people who have an income of less than \$3,000 per year, and that the medical profession has no consideration or affection for



them. This campaign of propaganda is being pushed at the same time legislation on the subject of health insurance is being considered by the Congress and by the legislatures of several states.

At this point it is necessary to observe that a large majority of the proponents of this legislation are people who draw salaries either from foundations, state governments, or the federal government.

As has been pointed out, it is largely a movement of so-called social service groups.

It is interesting also to observe that the American Federation of Labor has never sponsored any such legislation. The leadership in organized labor seeks to accomplish a wage scale which will enable the individual to purchase his own living requirements and thus enable the worker to live an independent existence.

The provisions in the Epstein Bill have been referred to in previous editorials. It would accomplish the complete regimentation of both doctors and patients if adopted. The patient would lose his or her independence, and the medical profession would lose its independence, and both would come under the domination of bureaucratic agencies set up under the state and national governments to administer the benefits provided for.

The time has come when doctors must exert a political influence. Our organizations have been designed to disseminate medical knowledge and inspire high ideals in medical practice. They have accomplished these purposes. It is now of vital importance that the organized profession in America exert a political influence in the preservation of the principles that have made us great, and which have enabled us to deliver to the people of the United States the greatest medical services to be had on earth today. It may even be necessary for medical organizations to purge their memberships of those who would do violence to sacred principles to accomplish an immediate selfish gain.

The membership will please read all the other material appearing in this issue concerning the problems touched upon in this editorial. Every doctor must not only be

informed, he must contact the Senators and members of the House of Representatives from Tennessee. Our action should be exerted both individually and collectively.

---

OFFICIAL STATEMENT TO THE HOUSE OF  
DELEGATES BY THE BOARD OF TRUSTEES  
FOR THE SPECIAL SESSION, FRIDAY,  
FEBRUARY 15, 1935

The Board of Trustees requested that this special session of the House of Delegates be called for "the consideration of the social and economic policies of the association as related to pending and proposed legislation, to sickness insurance, and to other matters which may be submitted by the Board of Trustees."

In offering this subject for the consideration of the House of Delegates, the Board of Trustees feels that the members of the house should be properly oriented as to the manner by which we of the medical profession came into the present situation.

The Board of Trustees deemed the present situation of such vital importance as to require that opportunity again be given for an expression through its official representatives of the well-considered views of the organized medical profession of the United States on these subjects.

Sickness insurance is not unique as a subject for discussion in the House of Delegates. In 1916 the American Medical Association developed a Committee on Industrial Insurance to study the whole question of social insurance for presentation to the House of Delegates. At the same time the House of Delegates decided through its committee, to educate the American medical profession in the general principles of social insurance, to inform the profession concerning the subject, and to appear before legislative bodies in this country when advisable. In 1917 the Committee on Social Insurance presented a resolution to the House of Delegates authorizing a continuance of the study of social insurance and a molding of laws for the purpose so that the health of the community and the practice of medicine might be properly safe-

guarded. At that time—in 1917—the principle was established that all such legislation should provide for freedom of choice of physician by the insured, payment of the physician in proportion to the amount of work done, separation of the functions of medical official, supervision from the function of daily care of the sick, and adequate representation of the medical profession on the appropriate administrative bodies.

The committee presented reports to the House of Delegates at the sessions in 1916, 1917, and 1919, and the House of Delegates each year approved the report and directed the committee to continue its work. In 1920, however, after a consideration of these reports, the American Medical Association, through its House of Delegates, declared its opposition to the institution of any scheme embodying a system of compulsory contributory insurance against illness or any other scheme which provides for medical service to be rendered contributors or their dependents provided, controlled, or regulated by any state or federal government. In 1922 the House of Delegates again declared its opposition to all forms of state medicine because of the ultimate harm that would come thereby to the public weal through such forms of medical practice. And it defined state medicine as any form of medical treatment, provided, conducted, controlled, or subsidized by the federal or any state government, excepting such service as is provided by the Army, Navy, or Public Health Service, and that which is necessitated by the control of communicable disease, the treatment of mental disease, or of the indigent sick. This resolution was finally made to except also such other services as may be approved, administered, or conducted by local county medical societies and not disapproved by the state medical society of which it is a component part.

Since 1923 the medical profession of the United States has been increasingly aware of various plans for changing the nature of medical practice attempted in different communities under local auspices, in many instances with the approval of the county and state medical society directly concerned.

In 1925, recognizing the influences at work leading toward a change in the nature of the practice of medicine, a Commission on Medical Education was developed, which included representatives of the organized medical, dental, nursing, and hospital professions, distinguished educators, and leaders of public thought. This commission undertook a complete study of the medical scheme with a view to the development of recommendations for modification for the benefit of the public health, for the improvement of medical service, and for the advancement of medical science.

It should be recognized also that schemes of sickness insurance under governmental auspices had been developed from time to time in foreign countries, beginning with the German one proposed by Bismarck in 1883 and followed by similar systems in other countries, culminating in the British system in 1911, proposed by Lloyd George. From time to time social workers, economists, and physicians from the United States have gone abroad to study such systems, and on their return have published in American periodicals the results of their studies. Moreover, *The Journal of the American Medical Association* and other periodicals have regularly reflected these activities in the letters of foreign correspondents and in special articles published in *The Journal*, notably a series written by the Secretary of the British Medical Association especially for *The Journal*.

In 1927, largely under the influence of three philanthropic foundations, the Twentieth Century Fund, the Milbank Fund, and the Rosenwald Fund, a committee of five was formed, called the Committee on the Costs of Medical Care, which was ultimately expanded to a committee of forty-eight, this committee also being planned to survey the entire medical setup in the United States and to bring out recommendations for providing the American people with what was called "the best type of medical care at a price they could afford to pay." Both the report of the Commission on Medical Education and of the Committee on the Costs of Medical Care were made available in 1932. These reports have had a consider-



able influence on the trend of American thought since the time of their publication relative to proposed changes in the nature of medical practice. In association with the development of this work, the American Medical Association established a Bureau of Medical Economics, which was planned to compile, correlate, and make available the facts in relationship to medical practice in the United States and also to undertake studies of new forms of medical practice developed from time to time in various places.

When the economic depression swept the United States toward the end of the presidency of Herbert Hoover all plans for social change were held in abeyance while the nation gave the larger portion of its attention to the problems of recovery and relief. It was recognized that the satisfaction of such fundamental needs as employment, food, fuel, and housing were primary, and that questions of social change must be secondary until these needs had been satisfied.

Nevertheless, continuing experimentation with new plans of medical service arousing discord in the medical profession in many places were brought increasingly to the attention of the official bodies of the American Medical Association so that the House of Delegates of the association at its meeting in Cleveland in June, 1934, adopted ten fundamental principles to guide the medical profession in the control of experiments with new forms of medical practice.

At the same time the Judicial Council of the American Medical Association introduced certain amendments to the Principles of Medical Ethics, recognizing the necessity for the control of the practice of medicine by commercial groups, hospital practice, industrial practice, and similar forms. The question of compulsory sickness insurance did not even in June, 1934, seem to loom largely on the medical horizon. Then on June 8, 1934, the President of the United States, just before departing on a vacation, announced his intention following his return to propose legislation for greater economic security for the people of the United States, and he indicated as primary ob-

jectives in such plans the question of unemployment and care of the aged.

In order to aid him in the development of these plans, a Committee on Economic Security was established including Frances Perkins, Secretary of Labor; Morgenthau, Secretary of the Treasury; Cummings, Attorney General; Wallace, Secretary of Agriculture; and Harry Hopkins, Director of Relief. This committee in turn set up a technical advisory staff with an executive director, and in this technical advisory staff there were included some thirteen divisions of the problem of social security with such departments as unemployment, old age, maternal welfare, child welfare, care of the handicapped, dental care, hospital care, medical service, and public health service. A technical director was installed for each of these departments, and it was announced that the problem of medical service would be under a technical director.

Edgar Sydenstricker, an employe of the Milbank Fund, who presented an individual minority report for the Committee on the Costs of Medical Care, indicating his belief that its plans did not go far enough, and that adequate provision for all of the people of food, fuel, clothing, housing, and medical service must be the primary objective of any social security plan, was made technical director for medical service.

Immediately on August 21, 1934, *The Journal of the American Medical Association* made available to Hon. Frances Perkins an editorial in which it was pointed out that the medical profession must be adequately represented in any studies of the need for sickness insurance. To this Secretary Perkins replied with assurance that "the advice of the medical profession will be obtained on all matters affecting it." "Moreover," she said, "it is our intention to obtain that advice through the appointment of a group of outstanding physicians and surgeons who will be available for consultations from time to time as the study develops."

These communications were referred to the Board of Trustees of the American Medical Association which officially offered to Secretary Perkins, as representatives of an

organization of approximately 100,000 physicians, all the observations and the results of investigations made by the Bureau of Medical Economics of the American Medical Association, as well as information and advice of all the officials and of the headquarters personnel, together with any facilities of the association. A similar communication was sent by the Secretary and General Manager to Mr. Edwin E. Witte, Executive Director of the Committee on Economic Security. In the meantime, efforts were made to determine the names of those who were to serve on the Medical Advisory Board. *These names were held by the officials of the government in the greatest secrecy*, so that it was impossible to determine until just before the Medical Advisory Board's first meeting the names of those who had been asked to serve.

When the Medical Advisory Board met, the technical advisory staff for medical service was supplemented by the names of Dr. R. G. Leland and Mr. A. M. Simons of the Bureau of Medical Economics of the American Medical Association. Isadore Falk, a worker in the Milbank Fund, Michael M. Davis of the Rosenwald Fund, and Nathan Sinai, who had conducted various investigations for the Michigan State Medical Society, and who had drawn up an insurance plan for that society, which, however, the society finally failed to adopt.

The Medical Advisory Board was told at the time of this meeting that the technical studies would be completed, and that it would have opportunity later to offer its advice relative to certain plans which would be drawn up by the technical advisory staff. In the meantime, the members of the Committee on Economic Security had been provided by the headquarters office of the American Medical Association with a statement on compulsory sickness insurance prepared by the Bureau of Medical Economics of the American Medical Association.

When the Congress of the United States convened shortly after the beginning of 1935, the President of the United States in his message delivered January 4 indicated his plans for social security. Thus he said:

"Closely related to the broad problem of

livelihood is that of security against the major hazards of life. Here also a comprehensive survey of what has been attempted or accomplished in many nations and in many states proves to me that the time has come for action by the national government. I shall send to you, in a few days, definite recommendations based on these studies. These recommendations will cover the broad subjects of unemployment insurance and old age insurance, of benefits for children, for mothers, for the handicapped, for maternity care, and for other aspects of dependency and illness where a beginning can be made."

Interesting was the manner in which the President passed immediately from unemployment insurance and old age insurance to the question of benefits for children, for mothers, for the handicapped, and for maternity care, leaving the question of sickness insurance to the phrase in which he said, "For other aspects of dependency and illness where a beginning can be made."

However, on January 17, 1935, the President sent to Congress a message relative to unemployment insurance, old age pensions, federal aid to dependent children, the support of existing mothers' pension systems, appropriations for services for the protection and care of homeless, neglected, dependent crippled children, and finally additional aid by the federal government to state and local public health agencies and for the strengthening of the federal Public Health Service. Of sickness insurance the President said specifically:

"I am not at this time recommending the adoption of so-called 'health insurance,' although groups representing the medical profession are cooperating with the federal government in the further study of the subject, and definite progress is being made."

Coincident with the message to Congress by the President came a message from the Committee on Economic Security to the President and the report that it submitted to the President. The committee indicated again in its report the difficulties inherent in a sickness insurance program, but seemed to forecast quite definitely its plans



in relationship to this problem. Thus it said:

"As a first measure for meeting the very serious problem of sickness in families with low income we recommend a nation-wide preventive public health program. It should be largely financed by state and local governments and administered by state and local health departments, the federal government to contribute financial and technical aid. The program contemplates (1) grants in aid to be allocated through state departments of health to local areas unable to finance public health programs from state and local resources, (2) direct aid to states in the development of state health services and the training of personnel for state and local health work, and (3) additional personnel in the United States Public Health Service to investigate health problems of interstate or national concern.

"The second major step we believe to be the application of *the principles of insurance to this problem*. We are not prepared at this time to make recommendations for a system of health insurance. We have enlisted the cooperation of advisory groups representing the medical and dental professions and hospital management in the development of a plan for health insurance which will be beneficial alike to the public and the professions concerned. We have asked these groups to complete their work by March 1, 1935, and expect to make a further report on this subject at that time or shortly thereafter. Elsewhere in our report we state principles on which our study of health insurance is proceeding, which indicate clearly that we contemplate no action that will not be quite as much in the interest of the members of the professions concerned as of the families with low incomes."

The committee proceeded somewhat further along in its report to a brief consideration of so-called health insurance, which still more elaborately hints at what is contemplated. Apparently the technical advisory staff of the Committee on Economic Security has made studies of the compulsory sickness insurance plans already established abroad. It has considered the pos-

sibilities of voluntary insurance and rejected them, as well as the possibility of ordinary commercial insurance. It has already, it seems, prepared the basic principles for a tentative plan of insurance believed adequate for the needs of American citizens with small means and appropriate to existing conditions in the United States. These are said to have been submitted to the professional advisory groups organized for the purpose. The advisory groups requested an extension of time, and the extension was granted until March 1. The statement was made that "arrangements have been effected for close cooperative study between the committee's technical staff and the technical experts of the American Medical Association." In its report submitted to the President, the Committee on Economic Security offered the following information to the professions, and to the public, as to the main lines along which its studies are proceeding. These were incorporated in the message of the President January 17, 1935:

"1. The fundamental goals of health insurance are: (a) the provision of adequate health and medical services to the insured population and their families; (b) the development of a system whereby people are enabled to budget the costs of wage loss and of medical costs; (c) the assurance of reasonably adequate remuneration to medical practitioners and institutions; (d) the development under professional auspices of new incentives for improvement in the quality of medical services.

"2. In the administration of the services the medical professions should be accorded responsibility for the control of professional personnel and procedures and for the maintenance and improvement of the quality of service; practitioners should have broad freedom to engage in insurance practice, to accept or reject patients, and to choose the procedure of remuneration for their services; insured persons should have freedom to choose their physicians and institutions; and the insurance plan shall recognize the continuance of the private practice of medicine and of the allied professions.

"3. Health insurance shall exclude commercial or any other *intermediary agents* between the insured population and the professional agencies which serve them.

"4. The insurance benefits must be considered in two broad classes: (a) cash payments in partial replacement of wage loss due to sickness and for maternity cases, and (b) health and medical services.

"5. The administration of cash payments should be designed along the same general lines as for unemployment insurance and, so far as may be practical, should be linked with the administration of unemployment benefits.

"6. The administration of health and medical services should be designed on a state-wide basis, under a federal law of a permissive character. The administrative provisions should be adapted to agricultural and sparsely settled areas as well as to industrial sections, through the use of alternative procedures in raising the funds and furnishing the services.

"7. The costs of cash payments to serve in partial replacement of wage loss are estimated as from 1 to 1.5 per cent of pay roll.

"8. The costs of health and medical services, under health insurance for the employed population with family earnings up to \$3,000 a year, is not primarily a problem of finding new funds, but of budgeting present expenditures, so that each family or worker carries an average risk rather than an uncertain risk. The population to be covered is accustomed to expend, on the average, about 4.5 per cent of its income for medical care.

"9. Existing health and medical services provided by public funds for certain diseases or for entire populations should be correlated with the services required under the contributory plan of health insurance.

"10. Health and medical services for *persons without income, now mainly provided by public funds*, could be absorbed into a contributory insurance system through the payment by relief or other public agencies of adjusted contributions for these classes.

"11. The role of the federal government

is conceived to be principally (a) to establish minimum standards for health insurance practice and (b) to provide subsidies, grants, or other financial aids or incentives to states which undertake the development of health insurance systems *which meet the federal standards.*"

Promptly on the submission of these messages and reports to the Congress of the United States, Senator Wagner, of New York, submitted in the Senate S. 1130, which is known as the Wagner Bill for Social Insurance. It covers specifically old age assistance, aid to dependent children, earnings and employment excise taxes. It sets up a social insurance board composed of three persons appointed by the President, to be a part of the Department of Labor. This board is authorized, with the approval of the Secretary of Labor, to appoint and fix compensation of all officers, attorneys and experts needed, without regard to civil service laws. Under this board will come the control of old age insurance, unemployment compensation, accident compensation, health insurance, and related subjects. Annuity certificates and taxes on pay rolls of 3 per cent are provided as means of raising funds.

Under the heading maternity and child welfare, this bill appropriates \$4,000,000 annually to enable the federal government to cooperate with the state agencies of health in extending and strengthening services for the health of mothers and children, especially in rural areas and in areas suffering from severe economic distress. This is to be administered by the Department of Labor. Each state is to get \$20,000 annually, and \$1,000,000 is to be apportioned among states in proportion to the respective live birth rates. The Secretary of Labor may apportion \$800,000 among states that are unable to match the federal appropriation. Furthermore, the Secretary of Labor may use the remainder to make special demonstrations and conduct research in maternal care. To secure the federal funds, the states must submit their plans to the Children's Bureau and obtain approval.

For the care of crippled children the Wagner Bill provides \$3,000,000 annually,



to be handled in much the same way as the funds for maternal and child welfare are to be handled, also subject to approval of the Children's Bureau.

For child welfare services \$1,500,000 annually is allotted, also distributed and controlled along the same lines.

Finally, the Wagner Bill appropriates \$10,000,000 annually to be administered by the Bureau of the Public Health Service. The bureau is to allot \$8,000,000 to the states in amounts determined on the basis of the need of each state for such assistance, to develop state health service, including the training of personnel for state and local health work and for the purpose of assisting counties or other political subdivisions of the states in maintaining public health programs. The sum of \$2,000,000 is to be made available annually to the Public Health Service for the further investigations of diseases and problems of sanitation and related matters.

In the meantime, various proponents of changes in the social order had been exceedingly active in developing plans for the promotion of sickness insurance schemes in the individual states. Most active was the group known as the American Association for Social Security, of which the executive secretary, Abraham Epstein, is most widely known. This group prepared a so-called social security bill for health insurance which proposed to establish a system of compulsory and voluntary state health insurance, including practically all manual workers and their dependents under its compulsory provisions. It also provided that certain other persons might voluntarily avail themselves of the supposed benefits of the act, so that it would include eventually 95 per cent of the entire population of the United States. This bill was immediately promoted in all the individual states, and it is understood that it is to be offered in the individual state legislatures from time to time as they convene throughout the country.

In order to meet this situation, the headquarters office of the American Medical Association has made available an editorial analysis of the Epstein Bill and, through its Bureau of Legal Medicine and Medical Legislation, its Bureau of Medical Economics and Secretary's office have been in direct communication with the individual state medical societies and state organizations, supplying them with information and a suitable analysis of this proposed legislation. Moreover, the Bureau of Medical Economics, to meet the arguments offered by proponents of compulsory sickness insurance on a federal basis, has developed a Catechism on Sickness Insurance, a series of articles on the sickness insurance schemes now operative in foreign countries and a vast amount of data published in various places on this subject.

In the meantime, the Medical Advisory Board has had another session, and it is no secret that the technical advisory staff proposes to assume complete responsibility for the recommendations incorporated in the final report to be made to the Committee on Economic Security, which, in turn, will offer its suggestions to the President. It will then be for the President of the United States to determine what he proposes to present to Congress in a further message on this subject, and also whether or not any special legislation of federal character is to be introduced as an administration bill.

Members of the House of Delegates should, of course, also be advised that at the time of this writing the Administration Relief Bill of \$4,800,000,000 to be disposed of by the President on his own responsibility is still undergoing hearings, and that the Wagner Bill has not yet been reported out of either House or Senate committees.

This is the status of the situation at this time. It remains for the House of Delegates to determine the policies of this organization for the guidance of its members and of its representatives.

## ACTION OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION IN EXTRAORDINARY SESSION

THE House of Delegates of the American Medical Association was called in extraordinary session February 15, 16, 1935, for "the consideration of the social and economic policies of the association as related to pending and proposed legislation, to sickness insurance, and to other matters which may be submitted by the Board of Trustees."

The questions were placed before the house by the Board of Trustees. After free and full discussion, a report was prepared by a reference committee, which was adopted by unanimous action of the House of Delegates.

This report is a statement of the policies of the American Medical Association on the questions considered.

The report is as follows:

### REPORT OF THE REFERENCE COMMITTEE, SPECIAL SESSION, HOUSE OF DELEGATES, FEBRUARY 15 AND 16, 1935

Your reference committee, believing that regimentation of the medical profession and lay control of medical practice will be fatal to medical progress and inevitably lower the quality of medical service now available to the American people, condemns unreservedly all propaganda, legislation, or political manipulation leading to these ends.

Your reference committee has given careful consideration to the record by the Board of Trustees of the previous actions of this House of Delegates concerning sickness insurance and organized medical care and to the account of the measures taken by the Board of Trustees and the officials of the association to present this point of view to the government and to the people.

The American Medical Association, embracing in its membership some 100,000 of the physicians of the United States, is by far the largest medical organization in this country. The House of Delegates would point out that the American Medical Association is the only medical organization open to all reputable physicians and estab-

lished on truly democratic principles, and that this House of Delegates, as constituted, is the only body truly representative of the medical profession.

The House of Delegates commends the Board of Trustees and the officers of the association for their efforts in presenting correctly, maintaining, and promoting the policies and principles heretofore established by this body.

The primary considerations of the physicians constituting the American Medical Association are the welfare of the people, the preservation of their health and their care in sickness, the advancement of medical science, the improvement of medical care, and the provision of adequate medical service to all the people. These physicians are the only body in the United States qualified by experience and training to guide and suitably control plans for the provision of medical care. The fact that the quality of medical service to the people of the United States today is better than that of any other country in the world is evidence of the extent to which the American medical profession has fulfilled its obligations.

The House of Delegates of the American Medical Association reaffirms its opposition to all forms of compulsory sickness insurance whether administered by the federal government, the governments of the individual states, or by any individual industry, community, or similar body. It reaffirms, also, its encouragement to local medical organizations to establish plans for the provision of adequate medical service for all of the people, adjusted to present economic conditions, by voluntary budgeting to meet the costs of illness.

The medical profession has given of its utmost to the American people, not only in this, but in every previous emergency. It has never required compulsion, but has always volunteered its services in anticipation of their need.



The Committee on Economic Security, appointed by the President of the United States, presented in a preliminary report to Congress on January 17 eleven principles which that committee considered fundamental to a proposed plan of compulsory health insurance. The House of Delegates is glad to recognize that some of the fundamental considerations for an adequate, reliable, and safe medical service established by the medical profession through years of experience in medical practice are found by the committee to be essential to its own plans.

However, so many inconsistencies and incompatibilities are apparent in the report of the President's Committee on Economic Security thus far presented that many more facts and details are necessary for a proper consideration.

The House of Delegates recognizes the necessity under conditions of emergency for federal aid in meeting basic needs of the indigent; it deprecates, however, any provision whereby federal subsidies for medical services are administered and controlled by a lay bureau. While the desirability of adequate medical service for crippled children and for the preservation of child and maternal health is beyond question, the House of Delegates deplores and protests those sections of the Wagner Bill which place in the Children's Bureau of the Department of Labor the responsibility for the administration of funds for these purposes.

The House of Delegates condemns as pernicious that section of the Wagner Bill which creates a social insurance board without specification of the character of its personnel to administer functions essentially medical in character and demanding technical knowledge not available to those without medical training.

The so-called Epstein Bill, proposed by the American Association for Social Security, now being promoted with propaganda in the individual states, is a vicious, deceptive, dangerous, and demoralizing measure. An analysis of this proposed law has been published by the American

Medical Association. It introduces such hazardous principles as multiple taxation, inordinate costs, extravagant administration, and an inevitable trend toward social and financial bankruptcy.

The committee has studied this matter from a broad standpoint, considering many plans submitted by the Bureau of Medical Economics as well as those conveyed in resolutions from the floor of the House of Delegates. It reiterates the fact that there is no model plan which is a cure-all for the social ills any more than there is a panacea for the physical ills that affect mankind. There are now more than 150 plans for medical service undergoing study and trial in various communities in the United States. Your Bureau of Medical Economics has studied these plans, and is now ready and willing to advise medical societies in the creation and operation of such plans. The plans developed by the Bureau of Medical Economics will serve the people of the community in the prevention of disease, the maintenance of health, and with curative care in illness. They must at the same time meet apparent economic factors and protect the public welfare by safeguarding to the medical profession the functions of control of medical standards and the continued advancement of medical educational requirements. They must not destroy that initiative which is vital to the highest type of medical service.

In the establishment of all such plans, county medical societies must be guided by the ten fundamental principles adopted by this House of Delegates at the annual session in June, 1934. The House of Delegates would again emphasize particularly the necessity for separate provision for hospital facilities and the physician's services. Payment for medical service, whether by prepayment plans, installment purchase, or so-called voluntary hospital insurance plans, must hold, as absolutely distinct, remuneration for hospital care on the one hand and the individual, personal, scientific ministrations of the physician on the other.

Your reference committee suggests that the Board of Trustees request the Bureau of Medical Economics to study further the

plans now existing and such as may develop, with special reference to the way in which they meet the needs of their communities, to the costs of operation, to the quality of service rendered, the effects of such service on the medical profession, the applicability to rural, village, urban, and industrial population, and to develop for presentation at the meeting of the American Medical Association in June model skeleton plans adapted to the needs of populations of various types.

(Signed)

DR. HARRY H. WILSON, *Chmn.*, California  
 DR. WARREN F. DRAPER, Virginia  
 DR. E. F. CODY, Massachusetts  
 DR. E. H. CAREY, Texas  
 DR. N. B. VAN ETTEN, New York  
 DR. F. S. CROCKETT, Indiana  
 DR. W. F. BRAASCH, Minnesota.

#### PROGRAM OF THE 1935 SESSION OF THE TENNESSEE STATE MEDICAL ASSOCIATION

The next meeting of the Tennessee State Medical Association will be held in Nashville, April 9, 10, 11, 1935. The Noel Hotel has been designated the headquarters hotel. All the sessions and all the exhibits will be at the Noel.

The following are members of the local Committee on Arrangements:

Dr. H. S. Shoulders, Chairman; Dr. D. W. Smith, Dr. J. C. Pennington, Dr. Eugene Regen, Dr. J. P. Gilbert.

The following is a tentative outline of the scientific program for the general session: It is not final as to essayists, as to subjects or as to arrangements. It is necessary that the Program Committee have opportunity to make final decisions at the last moment.

#### *Guest Speakers*

Dr. Kennon Dunham, Cincinnati.  
 Dr. Lay Martin, Baltimore.  
 Dr. A. J. Kotkis, St. Louis.  
 Dr. Austin B. Hayden, Chicago.

#### *Tentative Program*

"Physical Reactions to Functional Disorders," Dr. L. C. Sanders, Memphis.

"Influenza and the Nervous System," Dr. S. T. Rucker, Memphis.

"This Maternal Welfare Problem," Dr. J. R. Reinberger, Memphis.

"A Survey of Undulant Fever in Shelby County," Dr. W. R. Blue, Memphis.

"Urological Problems of Children of Interest to the General Practitioner," Dr. George R. Livermore, Memphis.

"Shock," Dr. P. A. Perkins, Memphis.

"Present Status of Radiation Therapy in Malignant Tumors of the Breast," Dr. W. S. Lawrence, Memphis.

"Bolulism," Dr. J. Lawrence Cochran, Jackson.

"Calcium Deposit," Dr. John L. Hankins, Johnson City.

"Diseases Resulting from Latent Sinusitis Which Are Usually Seen and Treated by the Family Physician," Dr. N. E. Hartsook, Johnson City.

"Versions, Its Indications and Advantages," Dr. G. W. Stone, Knoxville.

"Epidemic Meningitis in Knoxville, 1930-1934," Dr. R. B. Wood, Knoxville.

"The X-ray as an Aid to the General Practitioner," Dr. Hugh Reaves, Knoxville.

"Some Neurological Manifestations of Hyperinsulinism," Dr. Chas. Robert Thomas, Chattanooga.

"Pathological Uterine Bleeding," Dr. E. Dunbar Newell, Chattanooga.

"Treatment of Acute Cystitis," Dr. G. Madison Roberts, Chattanooga.

"Extraperitoneal Pathology with Intra-peritoneal Symptoms," Dr. John B. Ilas-kins, Chattanooga.

"The Management of the Occipito Posterior Position" (with report of about one thousand cases), Dr. Milton Smith Lewis, Nashville.

"Some Practical Suggestions on the Tuberculosis Problem," Dr. W. W. Hubbard, Nashville.

Dr. J. O. Manier, President, Nashville, presidential address.

"A Symposium on Traumatic Surgery," the details of which are not complete.



PROGRAM OF TENNESSEE STATE PEDIATRIC  
ASSOCIATION, APRIL 8, 1935, NOEL HOTEL,  
NASHVILLE, TENN.

President, Dr. Arthur G. Jacobs..Memphis  
Vice-President, Dr. John M. Lee..Nashville  
Secretary-Treasurer, Dr. Joe T. Smith  
.....Knoxville

*Executive Committee*

Dr. Owen Wilson, Chmn.....Nashville  
Dr. Walker Lee Rucks.....Memphis  
Dr. H. R. Casparis.....Nashville

9:30 A.M.—Introductory Remarks by  
the President, Dr. Arthur G. Jacobs, Mem-  
phis.

9:45 A.M.—“The Well Newborn,” Dr.  
Arthur G. Quinn, Memphis. To discuss:  
Dr. Wm. R. Cross, Knoxville; Dr. Milton  
S. Lewis, Nashville.

10:25 A.M.—“Renal Dwarfism,” Dr.  
Philip C. Elliott, Nashville. To discuss:  
Dr. Hearn Bradley, Nashville; Dr. T. Fort  
Bridges, Nashville.

11:05 A. M.—Five-minute intermission.

11:10 A.M.—“The Acute Abdomen in  
Children,” Dr. Philip Barbour, Louisville,  
Kentucky.

12:15 to 2 P.M.—Luncheon, joint meet-  
ing with members of the American Acad-  
emy of Pediatrics. Details will be an-  
nounced.

2:00 P.M.—“The Treatment of Empyema  
in Children,” Dr. J. G. Eblen, Knoxville.  
To discuss: Dr. Kimsey Buck, Memphis;  
Dr. John W. Hocker, Chattanooga.

2:40 P.M.—“Protests Against Over-  
standardization in Children,” Dr. W. R.  
Graves, Memphis. To discuss: Dr. Harry  
J. Jacobson, Memphis; Dr. C. W. Friberg,  
Johnson City.

3:20 P.M.—“Intestinal Parasitic Infesta-  
tion in Children,” Dr. Joel J. Hobson,  
Memphis. To discuss: Dr. John M. Lee,  
Nashville; Dr. Wm. E. VanOrder, Chatta-  
nooga.

4:00 P.M.—Five-minute intermission.

4:05 P.M.—“Scarlet Fever Immuniza-  
tion” (report of 10,000 Dick tests and ap-  
proximately 5,000 active immunizations),  
Dr. J. Norman Henry, Director of Depart-  
ment of Public Health, Philadelphia, Pa.

5:00 P.M. (approximately)—Short busi-  
ness meeting. Election of officers.

Annual banquet 8:00 P.M. Place and  
details to be announced.

Papers limited to twenty minutes (ex-  
cept guest speakers). Discussions limited  
to five minutes.

All members of the Tennessee State  
Medical Association are welcome at these  
meetings and may have the courtesy of the  
floor.

TENTATIVE PROGRAM, TENNESSEE ACADEMY  
OF OPHTHALMOLOGY AND OTOLARYNGOLOGY,  
NOEL HOTEL, NASHVILLE, TENNESSEE,  
MONDAY, APRIL 8, 1935

9:00 A.M.—

1. “Diagnosis and Removal of Foreign  
Bodies in the Lower Air Passages,” Dr. C.  
K. Lewis, Memphis.

2. “Retinal Detachment,” Dr. E. C. Ellett,  
Dr. R. O. Rychener, Memphis.

3. “The Estimation of the Number of  
Bacteria Found in the Discharge from  
Cases of Acute Purulent Otitis Media as an  
Aid in Diagnosis and Prognosis,” Dr. W. G.  
Kennon, Nashville.

4. “The Relation of Thoracic Surgery to  
Otolaryngology” (by invitation), Dr. Duane  
M. Carr, Memphis.

Chairman’s Luncheon at Noel Hotel.

*Afternoon Session*

2:00 P.M.—

5. “Tuberculin Ocular Tuberculosis,” Dr.  
R. J. Warner, Nashville.

6. “Disturbance of the Labyrinth Caus-  
ing Vertigo and Nausea,” Dr. R. G. Reaves,  
Knoxville.

7. “The Advantages of an Antral Win-  
dow in the Middle Meatus,” Dr. J. W. Mc-  
Kinney, Memphis.

8. Election of Officers.

Dinner at Noel Hotel at 7:00 P.M.

Guests of the Nashville Academy of Oph-  
thalmology and Otolaryngology.

1. President’s message, Dr. Eugene Orr,  
Nashville.

2. Guest speaker, Dr. W. S. Lawrence,  
Professor of Roentgenology, University of

Tennessee. "Results in X-ray or Radium Treatment of Certain Diseases of the Eye."

#### COMMERCIAL EXHIBITS

For the coming convention of the Tennessee State Medical Association a number of the leading manufacturers of medical supplies and equipment have reserved exhibit space.

The main lobby of the Noel Hotel will be given over to the exhibitors. The visiting doctors on entering or leaving the assembly hall will necessarily pass through the display spaces, and we are sure that these spaces will contain many things that are of interest to every doctor.

The following firms have already reserved booths for exhibits:

General Electric X-ray Corporation, Nashville Surgical Supply Company, Massey Laboratories, John S. Milam Optical Company, C. V. Mosby Company, Mead Johnson & Company, S. & H. X-ray Company, Saunders Publishing Company, E. R. Squibb & Sons, Theo Tafel Company, Winthrop Chemical Company, Inc., Philip Morris & Co., Ltd.

## DEATHS

Dr. F. A. McClintock, Newcomb; Lincoln Memorial Hospital, Medical School, 1889; aged 74; died February 18 of pleurisy.

## WOMAN'S AUXILIARY

*President*-----Mrs. Willis Campbell  
Memphis

*President-Elect*-----Mrs. R. G. Reaves  
Knoxville

*Press and Publicity*-----Mrs. W. W. Wilkerson, Jr.  
Nashville

#### ANNOUNCEMENT OF STATE MEETING

The annual meeting of the Woman's Auxiliary to the Tennessee Medical Association will be held in Nashville, April 9, 10, 11. Nashville is extending you the heartiest sort of an invitation. We hope a great many of you will come to share the inspiration and pleasure and help which a

convention always holds for us. The following committee has been appointed to take charge of the arrangements for the convention:

General Committee: Mrs. W. O. Floyd, Chairman; Mrs. B. F. Byrd, Mrs. Theodore Morford, Mrs. G. K. Carpenter, Mrs. W. W. Wilkerson, Jr. Assisted by the local Hospitality Committee: Mrs. H. S. Shoulders, Mrs. George Price, Mrs. Henry Douglas, Mrs. W. C. Dixon. Mrs. D. W. Smith, chairman of registration; Mrs. Herschel Ezell, chairman of transportation.

#### MRS. WILLIS CAMPBELL COMES TO NASHVILLE

Early in February, Mrs. Campbell came to Nashville to consult Mrs. Floyd and Mrs. Byrd about the state meeting. Fortunately, her visit coincided with the monthly meeting of the local auxiliary, so that Mrs. Campbell was able to greet all the Nashville members.

#### REPORTS OF LOCAL AUXILIARIES

*Davidson County, Mrs. B. F. Byrd, President*

In celebration of the seventh anniversary of its organization the Davidson County Auxiliary entertained with an elaborate valentine dinner for the husbands of its members. The dinner was held at the University Club on Friday, February 8. In a dining room gay with red and white balloons and large stands of pussy willows, the seventy-five guests were seated at small tables which held centerpieces of red flowers from the greenhouses of Dr. and Mrs. Frank Fessey. Favors and placements also carried the valentine motif. Mrs. W. O. Floyd, hospitality chairman, presided as toastmistress. She presented Mrs. B. F. Byrd, president of the auxiliary, who extended greetings to the guests. Mrs. Willis Campbell, of Memphis, was the honor guest. Short talks were made by Dr. B. F. Byrd, chairman of the State Auxiliary Advisory Council; Dr. W. G. Kennon, president of the Nashville Academy of Medicine; and Dr. John M. Lee. Mrs. Carl McMurray, historian and general chairman of the affair, gave a resume of the activities of the auxiliary. A musical program was given



under the direction of Mrs. Fowler Hollabaugh. This included: Selections by a quartette composed of Dr. Cleo Miller, Dr. Lynch Bennett, Dr. Frazier Binns, and Dr. Joe Alford; numbers by a stringed trio composed of Mrs. McMurray, Mrs. Harvill Hite, Mrs. Joseph Travenick, Jr.; solos by Mrs. Jay Johns, Jr.; a vocal duet by Mrs. Hollabaugh and Dr. Binns; and a vocal solo by Mrs. Hollabaugh, with violin obligato by Dr. Hollabaugh and with Mrs. Bruce P'Pool accompanying. An interesting feature of the program was a group of songs in tableaux given under the direction of Mrs. Herschel Ezell, the figures being posed in a large valentine frame. Those taking part were: Mrs. R. L. Dozier, Jr., "Annie Laurie"; Mrs. R. R. Crowe, "In the Gloaming"; Mrs. Paul Purks, "Little Annie Rooney"; Mrs. O. G. Nelson, "Juanita"; Mrs. Lynch Bennett, "Sally in Our Alley"; and Mrs. D. W. Smith, "The Quilting Party."

#### PERSONAL NEWS ITEMS

Born, on February 4, to Dr. and Mrs. Frank Luton, of Nashville, a girl, Deborah Young.

Born, on February 19, to Dr. and Mrs. W. R. Cate, of Nashville, a boy, Thomas Randolph.

Mrs. W. S. Leathers, of Nashville, is recuperating from an illness which has confined her to her home for several months.

### NEWS NOTES AND COMMENTS

Dr. Morris Fishbein, editor of the *Journal of the American Medical Association*, was a recent visitor at Vanderbilt School of Medicine. While here he delivered a public address in Neely Auditorium on "The Social Aspects of Medicine."

Dr. Maurice Brodie, of the laboratories of the City Health Department of New York City, addressed the Vanderbilt medical students on February 12 on the subject, "Poliomyelitis," with particular reference to his recent work on immunization.

Dr. R. Z. Linney wishes to announce the change of his office address to Madison, Tennessee.

### MEDICAL SOCIETIES

*Blount County* — During the coming month the following papers will be read:

March 21: "Blood Transfusion and Its Indications," by Dr. D. R. Thomas. To open discussion, Dr. J. E. Carson.

March 28: "Management of Psychoneurosis in General Practice," by Dr. Jesse Hill, Knoxville.

April 4: "Gonorrheal Neonatorium," by Dr. A. M. Gamble. To open discussion, Dr. J. M. Waters.

"Dangers Attending Forcep Deliveries," by Dr. J. W. Tipton. To open discussion, Dr. W. O. Brickell.

April 11: "Some Common Diseases of Anorectal Regions," by Dr. C. C. Vinsant. To open discussion, Dr. B. E. DeLozier.

*Davidson County*—February 12: The academy accepted the invitation of the Student Union of Vanderbilt to hear Dr. Morris Fishbein discuss "The Social Aspects of Medicine."

February 19: "An Introduction of a New Quantitative Wassermann System with Reference to Older Systems," by Mr. Chas. G. Ransom of the Litterer Laboratories. Discussed by Drs. J. C. Pennington, Wm. Litterer, and W. G. Kennon.

February 25: "Practical Applications of Research Advances in the Field of Sex Hormones," by Dr. Ludwig Fraenkel, professor and director of the Department of Gynecology and Obstetrics of the University of Breslau, Germany.

March 5: "X-ray Therapy for Inflammatory Lesions, with Special Reference to Chronic Sinusitis," by Dr. E. E. Brown. Discussed by Drs. C. M. Hamilton and Eugene Orr.

Dr. Howard King, member of the State Cancer Committee, gave lantern slide demonstrations. This work is in cooperation with the American Society for the Control of Cancer.

March 12: "Treatment of Paralytic Ilues," by Dr. W. A. Bryan. Discussion opened by Drs. L. W. Edwards and R. A. Barr.

"Case Report: Strangulation of Normal Fallopian Tube Due to Torsion," by Dr. C. S. McMurray.

*Dyer, Lake, and Crockett Counties*—March 6: Symposium on Diseases of the Spleen.

1. Surgical Conditions—Dr. J. A. Crisler, Jr., Memphis.

2. Medical Aspects—Dr. Whitman Rowland, Memphis.

3. Differential Diagnosis—Dr. R. A. Hennessy, Memphis.

The program was very instructive. Thirty members were present. — C. L. DENTON, *Secretary*.

*Hamilton County*—Essayists and subjects are scheduled as follows for the coming month:

March 21: "Laryngeal Diphtheria," by Dr. John W. Hocker. "Medical Memories," by Dr. Fred B. Stapp.

March 28: "Recent Progress in the Treatment of Gonorrhea," by Dr. S. H. Barrett.

April 4: "Oxygen Therapy in Pneumonia," by Dr. Chas. R. Henry. "Tumors of the Breast," by Dr. H. H. Hampton.

April 11: No meeting—week of Tennessee State Medical Society meeting.

*Hardin, Lawrence, Lewis, Perry, and Wayne Counties*—The Five-County Medical Society met in Lawrenceburg on February 26. The following papers were read:

"Heart Irregularities," by Dr. John B. Youmans, Nashville. Discussion opened by Dr. T. J. Stockard, Lawrenceburg.

"Diagnosis and Treatment of Cancer of the Rectum," by Dr. W. D. Haggard, Nashville. Discussion opened by Dr. J. H. Tilley, Lawrenceburg.

"Anesthesia," by Dr. R. J. DeFord, Savannah. Discussion opened by Dr. D. L. Woods, Waynesboro.

*Henry County* — Regular meeting held February 26. A round-table discussion, "Fees and Collections," was entered into by all present. A resolution was passed endorsing the fee schedule which is in force in the county and pledging the best possible support thereto.

R. GRAHAM FISH, *Secretary*.

## OTHER MEDICAL SOCIETIES

Dr. Carl R. Crutchfield, Nashville, was elected president of the Mid-South Postgraduate Medical Assembly in session February 12-15 in Memphis.

### VANDERBILT UNIVERSITY MEDICAL SOCIETY FEBRUARY 1, 1935

1. Case Report: "A Case of Hirschsprung's Disease Successfully Treated by Lumbar Gangliectomy," Dr. Henry M. Carney.

An eight-year-old negro boy for four years had been known to have a large abdomen and to have infrequent bowel movements. On several examinations the rectum was found packed with feces. X-ray examinations showed an enormous dilatation of the large bowel, the capacity being 7,000 cc. He was treated for three years with low residue diets and frequent enemata. On the last previous admission, two months ago, it was necessary to remove a large fecal impaction. A few weeks later a bilateral lumbar sympathetic gangliectomy was performed. He has since had (1) a daily bowel movement without the use of enemata, (2) his distension has been relieved, (3) the capacity of the large bowel has diminished to 1,700 cc., (4) peristaltic waves may be seen in the large bowel.

Case discussed by Drs. Garrey, Johnson, and Clark.

2. "Studies of the Circulation During Pregnancy," Drs. C. Sidney Burwell, W. David Strayhorn, Jr., Marvin D. Corlette, Don Flickinger, and Earl P. Bowerman.

Changes in the cardiac output, the venous pressure, the physical signs, and the oxygen content of uterine blood indicate that the major alterations in the circulation of pregnant women are:

1. An arteriovenous connection through the placenta.
2. The obstruction offered by the uterus to the return of blood from the pelvis and legs.

Paper discussed by Drs. Harrison, Youmans, Garrey, Brooks, and Cowan.



# LIST OF OFFICERS OF THE TENNESSEE STATE MEDICAL ASSOCIATION

President—Dr. J. O. Manier, Nashville.  
 Vice President for East Tennessee—Dr. W. B. Campbell, Cleveland.  
 Vice President for Middle Tennessee—Dr. J. K. Blackburn, Pulaski.  
 Vice President for West Tennessee—Dr. G. H. Berryhill, Jackson.  
 Secretary-Editor—Dr. H. H. Shoulders.  
 Assistant Secretary-Editor—Dr. W. M. Hardy.

## TRUSTEES

Chairman and Treasurer—Dr. C. M. Hamilton, Doctors Building, Nashville.  
 Dr. Ralph Monger, Medical Arts Building, Knoxville.  
 Dr. W. L. Williamson, 915 Madison Avenue, Memphis.  
 Dr. H. B. Everett, 2541 Broad Street, Memphis.  
 Dr. E. R. Zemp, Walnut Street, Knoxville.

## COUNCILORS

First District—Dr. L. E. Dyer, Greeneville.  
 Second District—Dr. S. R. Miller, Knoxville.

Third District—Dr. J. H. Revington, Chattanooga.  
 Fourth District—Dr. J. T. Moore, Algood.  
 Fifth District—Dr. John W. Sutton, Petersburg.  
 Sixth District—Dr. L. W. Edwards, Nashville.  
 Seventh District—Dr. C. D. Walton, Mt. Pleasant.  
 Eighth District—Dr. J. R. Thompson, Jackson.  
 Ninth District—Dr. E. H. Baird, Dyersburg.  
 Tenth District—Dr. W. B. Burns, Memphis.

Speaker of the House of Delegates—Dr. E. R. Zemp, Knoxville.

Delegates to the American Medical Association—

Dr. E. G. Wood, Knoxville; East Tennessee.  
 Dr. H. H. Shoulders, Nashville; Middle Tennessee.  
 Dr. H. B. Everett, Memphis; West Tennessee.

Alternates—

Dr. E. T. Newell, Chattanooga; East Tennessee.  
 Dr. M. M. Cullom, Nashville; Middle Tennessee.  
 Dr. E. C. Ellett, Memphis; West Tennessee.

## OFFICERS OF COUNTY MEDICAL SOCIETIES FOR THE YEAR 1935

| COUNTY                                   | PRESIDENT                             | VICE PRESIDENT                                                                                             | SECRETARY-TREASURER              |
|------------------------------------------|---------------------------------------|------------------------------------------------------------------------------------------------------------|----------------------------------|
| Anderson                                 | Thomas Jennings, Clinton              | Edward Dickson, Coal Creek                                                                                 | J. S. Hall, Clinton              |
| Bedford                                  | W. T. Sharpe, Farmington              | Alfred Farrar, Shelbyville                                                                                 | W. H. Avery, Shelbyville         |
| Blount                                   | C. C. Vinsant, Maryville              | L. C. Olin, Maryville                                                                                      | H. A. Calloway, Maryville        |
| Bradley                                  | Vance H. Bell, Cleveland              | D. N. Arnold, Cleveland                                                                                    | Wm. A. Garrett, Cleveland        |
| Campbell                                 | A. L. Lawson, Elk Valley              | G. M. Rogers, LaFollette                                                                                   | F. A. McClintock, Newcomb        |
| Carroll                                  |                                       |                                                                                                            | J. H. Williams, McKenzie         |
| Carter                                   | E. T. Pearson, Elizabethton           | J. B. Shoun, Elizabethton                                                                                  | E. L. Caudell, Elizabethton      |
| Chester, Henderson,<br>Decatur           | C. H. Johnston, Lexington             |                                                                                                            | L. C. Smith, Henderson           |
| Cocke                                    | J. A. P. Shields, Hartford            |                                                                                                            | J. E. Hampton, Newport           |
| Davidson                                 | W. G. Kennon, Nashville               | H. S. Shoulders, Nashville                                                                                 | J. P. Gilbert, Nashville         |
| Dickson                                  | L. F. Loggins, Charlotte              |                                                                                                            | R. P. Beasley, Dickson           |
| Dyer, Lake, and Crockett                 | E. H. Baird, Dyersburg                | P. E. Miller, Tigrett (Dyer)<br>R. C. Newkirk, Tiptonville (Lake)<br>J. O. McKinney, Friendship (Crockett) | C. L. Denton, Dyersburg          |
| Fayette and Hardeman                     | John Morris, Somerville               | L. D. McAuley, Oakland                                                                                     | A. Richards, Bolivar             |
| Franklin                                 | W. F. Smith, Decherd                  | A. P. Smith, Winchester                                                                                    | John P. Grisard, Winchester      |
| Gibson                                   | P. D. Jones, Milan                    | L. H. Montgomery, Trenton                                                                                  | F. L. Roberts, Trenton           |
| Giles                                    | Joe B. Wright, Lynnville              | R. E. Warren, Pulaski                                                                                      | T. F. Booth, Pulaski             |
| Greene                                   | L. E. Dyer, Greeneville               | M. A. Blanton, Mosheim                                                                                     | C. P. Fox, Jr., Greeneville      |
| Hamblen                                  | P. L. Henderson, Morristown           | P. L. Brock, Morristown                                                                                    | J. F. Campbell, Morristown       |
| Hamilton                                 | James L. Bibb, Chattanooga            | D. N. Williams, Chattanooga                                                                                | W. J. Sheridan, Chattanooga      |
| Hardin, Lawrence, Lewis,<br>Perry, Wayne | G. N. Springer, Hohenwald             |                                                                                                            | C. C. Stockard, Lawrenceburg     |
| Haywood                                  | W. D. Poston, Brownsville             | A. H. Sorrelle, Brownsville                                                                                | Roy M. Lanier, Brownsville       |
| Henry                                    | A. F. Paschall, Puryear               | Elroy Scruggs, Paris                                                                                       | R. Graham Fish, Paris            |
| Hickman                                  | L. F. Pritchard, Only                 |                                                                                                            | W. K. Edwards, Centerville       |
| Humphreys                                |                                       |                                                                                                            | W. W. Slayden, Waverly           |
| Jackson                                  | J. D. Quarles, Whitleyville           | R. C. Gaw, Gainesboro                                                                                      | F. B. Clark, Gainesboro          |
| Knox                                     | Eugene Abercrombie, Knoxville         | W. F. Christenberry, Knoxville                                                                             | Jesse C. Hill, Knoxville         |
| Lauderdale                               | J. L. Dunnavant, Ripley               | T. E. Miller, Ripley                                                                                       | J. R. Lewis, Ripley              |
| Macon                                    | D. D. Howser, Lafayette               |                                                                                                            | J. Y. Freeman, Lafayette         |
| Madison                                  |                                       |                                                                                                            | S. M. Herron, Jackson            |
| Maury                                    | E. M. Ragsdale, Columbia              | D. B. Andrews, Columbia                                                                                    | C. D. Walton, Mt. Pleasant       |
| McMinn                                   | R. W. Epperson, Athens                | S. B. McClary, Sr., Etowah                                                                                 | L. A. Brendle, Englewood         |
| McNairy                                  | John R. Smith, Selmer                 | G. B. Curry, Selmer                                                                                        | H. C. Sanders, Selmer            |
| Monroe                                   | T. M. Roberts, Sweetwater             |                                                                                                            | W. J. Cameron, Sweetwater        |
| Montgomery                               |                                       |                                                                                                            | Paul E. Wilson, Clarksville      |
| Polk                                     | H. P. Hyde, Copperhill                | W. Y. Gilliam, Copperhill                                                                                  | F. O. Geisler, Isabella          |
| Putnam                                   | Z. L. Shipley, Cookeville             | J. Fred Terry, Cookeville                                                                                  | Thurman Shipley, Cookeville      |
| Roane                                    | L. A. Killefer, Harriman              | R. F. Register, Rockwood                                                                                   | W. W. Hill, Harriman             |
| Robertson                                | W. Foster Fyke, Springfield           |                                                                                                            | W. S. Rude, Ridgeway             |
| Rutherford                               | J. D. Hall, Readyville                |                                                                                                            | J. A. Scott, Murfreesboro        |
| Scott                                    |                                       |                                                                                                            | D. M. Woodward, Winona           |
| Sevier                                   | O. H. Yarberry, Sevierville           |                                                                                                            | C. P. Wilson, Sevierville        |
| Shelby                                   | Jas. B. Stanford, Memphis             | R. G. Henderson, Memphis                                                                                   | A. F. Cooper, Memphis, Secretary |
|                                          | R. F. Mason, Memphis, President-Elect |                                                                                                            | J. J. Hobson, Memphis, Treasurer |
| Smith                                    | R. E. Key, Monroville                 | Rhea E. Garrett, Dixon Springs                                                                             | Thayer S. Wilson, Gordonsville   |
| Sullivan and Johnson                     | W. R. Rogers, Bristol, Va.            | L. C. Cox, Kingsport (Sullivan)<br>J. C. Hutchenson, Crandall (Johnson)                                    | Arthur Hooks, Bristol, Tenn.     |
| Tipton                                   | A. J. Butler, Covington               | J. J. Fleming, Atoka                                                                                       | H. C. Currie, Covington          |
| Warren                                   |                                       |                                                                                                            | John S. Harris, McMinnville      |
| Washington                               | J. W. Wallace, Johnson City           | E. T. Brading, Johnson City                                                                                | Carroll H. Long, Johnson City    |
| Weakley                                  | K. W. Brandon, Martin                 | H. G. Edmonson, Martin                                                                                     | P. W. Wilson, Dresden            |
| White                                    | S. E. Gaines, Sparta                  | Vernon Hutton, Ravenscroft                                                                                 | A. F. Richards, Sparta           |
| Williamson                               | T. C. Rice, Franklin                  | R. H. Hutchison, Franklin                                                                                  | K. S. Howlett, Sr., Franklin     |
| Wilson                                   | J. L. Ames, Lebanon                   | C. C. Young, Alexandria                                                                                    | J. R. Bone, Lebanon              |

## STANDING COMMITTEES

## COMMITTEE ON SCIENTIFIC WORK

H. H. Shoulders, Chairman, Nashville  
A. F. Cooper, Memphis  
W. J. Sheridan, Chattanooga  
Jesse C. Hill, Knoxville

COMMITTEE ON PUBLIC POLICY AND  
LEGISLATION

L. W. Edwards, Chairman, Nashville  
T. R. Ray, Shelbyville  
Robert Sullivan, Nashville  
Battle Malone, Memphis  
Tom R. Barry, Knoxville  
J. O. Manier, ex officio, Nashville  
H. H. Shoulders, ex officio, Nashville

## COMMITTEE ON MEDICAL EDUCATION

O. S. Warr, Chairman, Memphis  
W. H. Witt, Nashville  
Franklin Bogart, Chattanooga  
Oliver Hill, Knoxville

ADVISORY COMMITTEE TO THE WOMAN'S  
AUXILIARY

B. F. Byrd, Chairman, Nashville  
Percy Wood, Memphis  
Eugene Abercrombie, Knoxville

## LIAISON COMMITTEE

Hiram A. Laws, Chattanooga (five years)  
Tom Mitchell, Memphis (four years)  
J. L. Raulston, Knoxville (three years)  
W. C. Dixon, Chairman, Nashville (two years)  
W. P. Wood, Knoxville (one year)

STATE TUBERCULOSIS HOSPITAL  
COMMISSION

W. S. Rude, Chairman, Ridgeway  
O. N. Bryan, Nashville  
H. R. Townsend, Oakville  
James L. Hamilton, Chattanooga

## HOSPITAL COMMITTEE

Lee Gibson, Chairman, Johnson City  
D. R. Pickens, Nashville  
E. H. Baird, Dyersburg  
E. Dunbar Newell, Chattanooga  
Kyle C. Copenhaver, Knoxville  
W. K. Edwards, Centerville  
J. A. McIntosh, Memphis

## CANCER COMMITTEE

Ralph H. Monger, Chairman, Knoxville  
A. M. Patterson, Chattanooga  
J. A. Crisler, Jr., Memphis  
James W. McClaran, Jackson  
Howard King, Nashville  
E. T. West, Johnson City  
J. A. McCulloch, Maryville

3. "An Experimental Study of Penetrating Wounds of the Brain," Dr. Cobb Pilcher.

In fifty-four experiments on dogs, the following factors were found to greatly increase the danger of a fulminating, fatal infection from retained foreign bodies in the brain: Prolongation of the period of retention beyond twelve hours; communication with the skin, subarachnoid space, or ventricle. Prompt open drainage of already present infections proved advantageous. From these experiments, the following therapeutic conclusions were drawn: (1) All foreign bodies communicating with the skin, subarachnoid space, or ventricle should be immediately removed; (2) other deeply situated foreign bodies which do not cause symptoms may safely be left alone; (3) infections already established about foreign bodies should be widely drained.

Paper discussed by Dr. Brooks.

## ABSTRACTS OF CURRENT LITERATURE

## ANESTHESIA

By HUGH BARR, M.D.  
Medical Arts Building, Nashville

Evipal Anesthesia. J. Lloyd Collins and Chas. S. White.  
Virginia Medical Monthly, February, 1935.

Accurate notes were kept on 100 consecutive cases of evipal anesthesia. It was found that anesthesia was complete; that is, to the surgical degree. It was of short duration and was used in cases requiring only a brief anesthesia. The patients were given a preliminary hypodermic of one-fourth grain of morphine with or without 1/150 grain of scopolamine. The dose of evipal is primarily based on weight of the patient, six cc. of a ten per cent solution for each 100 pounds, but the dose should not be over 100 cc. The feeble and anemic individual requires less than the weight would indicate.

The youngest in the series was eight and the oldest seventy-four years of age, but the majority lay between twenty and thirty years of age. The least dosage was two and one-half cc., and the greatest was fifteen cc., violating the rule, but no bad results occurred. Anesthesia was complete in most cases in about a minute, and the duration of anesthesia averaged about thirteen minutes. The time required for complete reaction from the beginning of anesthesia was about twenty-five minutes. There was freedom from nausea and excitement. There were no bad results or compli-



cations in patients with diabetes, pneumonia, nephritis, psychosis, and alcoholism. Most of the cases had minor operations, but the list included a Caesarian section and five appendectomies. Evipal is detoxified in the liver, so liver disease is a contraindication.

## DERMATOLOGY

By E. E. BROWN, M.D.  
Doctors Building, Nashville

Use of Maize Oil (Unsaturated Fatty Acids) in the Treatment of Eczema, Preliminary Report. Theodore Cornbleet, M.D., with the Collaboration of Earle R. Pace, M.D. Chicago, Ill.

The authors started an experiment with the use of viosterol in the treatment of eczema. As a control they used plain maize or corn oil. This was used because it is the ordinary diluent in practically all preparations of viosterol. After a time those patients who were given maize oil alone were improved just as much as those who were given viosterol and maize oil. Maize oil is much less expensive, slightly disagreeable to the taste, and can be taken in larger doses. They report a series of eighty-seven cases that have been treated with gratifying results. A few of the patients had asthma and this together with eczema was very much improved. A number of the patients had had eczema from infancy and they have remained well for three years. The disadvantage to this form of treatment is the long time required for permanent results to be established. The average time for a cure has been twelve to eighteen months. The patient should be acquainted with this fact at the beginning of the treatment in order that he or she may not become disheartened.

The authors are of the opinion that the therapeutic value of maize oil is due to the high content of unsaturated fatty acids.

## OPHTHALMOLOGY

By ROBERT J. WARNER, M.D.  
Doctors Building, Nashville

Relationship Between Arteriosclerosis, Essential Hypertension, and the Fundus. J. Brana and G. Schiff. American Journal of Ophthalmology, February, 1935.

Seven years of experience have shown the authors that the prognosis in arteriosclerosis and essential hypertension can be determined with the aid of the ophthalmoscope (in addition to other methods of examination). Where marked sclerotic vessel changes are present with hemorrhage, or if there is retinal degeneration, fifty per cent of these patients die within two years. The others have apoplectic attacks from thrombosis, or hemiplegia.

## PEDIATRICS

By JOHN M. LEE, M.D.  
Doctors Building, Nashville

Essential (Thrombocytopenic) Purpura Hemorrhagica. Dr. Bernard Myers. London, England. Amer. Jour. Dis. of Children, February, 1935.

Brief histories of five patients with this disease relieved by splenectomy are reported. Previous to operation, these patients received the usual treatment, including transfusions, without relief. Four of the five were females; symptoms appeared at from six to nine years of age; operation was performed at from one month to seventeen years after symptoms appeared; from one to nine years have elapsed since operation, and all patients are perfectly well.

Of 233 recorded cases of splenectomy for essential purpura hemorrhagica, 173 were cured; thirty died; one partially cured; seventeen improved; six unimproved; and in six results not known. In a number of cases of recurrence of purpura after splenectomy, accessory spleens had not been removed. The author found that fifty-three per cent of his cases had accessory spleens which showed similar pathology to that in the parent spleen.

The theory is advanced that this disease is due to a toxic substance in the spleen and not a disease of the capillaries, as the bleeding ceases after splenectomy, and the platelet count, low previous to operation, quickly rises after removal of the spleen because of the removal of the toxic substance.

Bleeding from the gums, epistaxis, hematuria, menorrhagia, melena, and other hemorrhages may be due to essential purpura, and, the diagnosis established, splenectomy is the appropriate treatment if the disease is primary.

To be differentiated from this condition are hemophilia, aplastic anemia, leukemia, scurvy, hereditary telangiectasis, symptomatic purpura, and hereditary thrombasthenic purpura.

## SURGERY—GENERAL AND ABDOMINAL

By ROBIN F. MASON, M.D., F.A.C.S.  
735 Medical Arts Building, Memphis

The Blood Sedimentation Test and Its Value in the Differential Diagnosis of Acute Appendicitis. Albert Lesser, M.D., and Harold A. Goldberger, M.D. New York. S. G. & O., February 1, 1935, Vol. 60, No. 2.

After discussing the theories explaining the phenomenon of blood sedimentation, the authors explain their modification of the Fahraeus test which has been most universally accepted. They have used their modification in the cases herein reported.

In 1931, they began the study of sedimentation rates in various types of cases in the wards of

the Metropolitan Hospital of New York. Two thousand cases were studied, both medical and surgical. These cases comprised: (a) pneumonia and complications, (b) tuberculosis, (c) rheumatic fever, (d) pregnancy and complications, (e) acute and chronic salpingitis, and (f) the acute surgical abdomen, stressing the differential diagnosis of conditions in the right lower quadrant.

Sixty cases of pneumonia with an average of five weekly readings showed a severe reaction when the cases were in full swing, with a decrease in the severity of the reaction as resolution and convalescence began. When, however, a complication made its appearance, such as pleurisy or empyema, a sudden sharp increase in sedimentation rate took place.

Fifty cases of tuberculosis, both pulmonary and peritoneal, demonstrated the fact that the sedimentation rate was an accurate index of the extent and activity of the process.

Forty cases of rheumatic fever were studied with an average of five readings per case. The average reading showed a severe reaction. It was found that the severity of the reaction taken at regular intervals was an accurate index as to prognosis of the case.

The abdominal symptoms of this disease can be differentiated from acute appendicitis by the sedimentation rate as will be shown later.

The authors then quote Fahraeus, who states that beginning with the second month of pregnancy there is a slow increase of the sedimentation rate. In the complications of pregnancy, such as abortion with the retention of secundines and sepsis, there is a sharp rise in the time rate.

This is also true in cases of ruptured ectopic pregnancy with hemorrhage into the abdominal cavity.

About 1,000 cases of acute and chronic salpingitis (adnexal disease) were studied with a number of readings varying from one to twelve. All these cases varied from moderate to severe reactions, depending upon the degree and extent of the pelvic pathology. Weekly or biweekly readings were made in these cases in order to determine (a) the progress of the disease and (b) the optimum time for operation where operation was indicated. No case was operated till the reaction was normal. As a result not one single acute process was encountered.

The acute surgical abdomen cases presented an interesting study in comparing the sedimentation reaction with the leucocytic response.

"Despite a definitely high leucocytic count in these cases, in which definite acute appendiceal pathology was demonstrated at the operating table, we were surprised to encounter a normal sedimentation reaction."

The abdominal conditions other than acute appendicitis in the order of frequency with which they were found at the Metropolitan Hospital were:

1. Acute adnexal disease.
2. The acute surgical gall bladder.
3. Ruptured peptic ulcer.
4. Tuberculous peritonitis.
5. Acute conditions of the genitourinary tract.
6. Masked chest conditions with abdominal manifestations.
7. Miscellaneous conditions with acute abdominal manifestations.

All the above conditions showed abnormal sedimentation rates varying from slight to severe reactions, while the acute appendicitis cases gave, invariably, normal sedimentation rates.

From the above studies comprising 3,000 readings in 2,000 cases over a period of two and one-half years, the authors conclude that the sedimentation test is a valuable aid in the differential diagnosis of acute appendicitis.

## UROLOGY

By TOM R. BARRY, M.D., F.A.C.S.  
Medical Building, Knoxville

Forced Spinal Drainage in the Treatment of a Case of Gastric Crisis. Ralph M. Williams. *Am. J. Syphilis*, Vol. 18, October, 1934.

Weed showed that the primary source of the spinal fluid was the choroid plexus from whence it passes through the ventricular system.

In 1925, Kubie showed that the proportion of lymphocytes to other cells was constantly higher in the later fractions of the withdrawn fluid than in the first. He further showed that, after the subarachnoid space was nearly drained, the intravenous injections of hypotonic solution caused the percentage of lymphocytes in the newly formed fluid to mount even higher. The examination of the central nervous system of animals so treated showed that there had been a marked migration of lymphocytes into the subarachnoid space. This condition led them to believe that such a washing out of inflammatory products might carry with it toxic agents also. In 1927, he applied this principle to human subjects, and showed that, by lowering the cerebrospinal fluid to atmospheric pressure by forced drainage, new fluid could be quickly produced by the administration of water by mouth or more quickly by intravenous hypotonic salt solution intravenously.

By continuing this new flow of spinal fluid, toxic substances could be washed out of the canal. This he also showed could be done without producing any hydration of the tissues of the central nervous system, and without causing a material increase in intracranial pressure.

*Technic.* Modification of the Bradford frame is used for the support of the patient. A window is left in the frame at the site of the lumbar puncture. A needle is inserted into the canal, and the patient placed upon his back, with the head eight to ten inches higher than the feet. The fluid is



allowed to drain out until there is only one or two drops of fluid per minute.

Intravenous saline, .45 to .5 per cent, is then started. From 2,000 to 5,000 cc. may be given in eight to twelve hours, during which time 300 to 800 cc. of fluid may be withdrawn.

Spurling reports good results in one case of polio.

The author reports one case of severe gastric crisis permanently relieved by this treatment. He does not venture an opinion as to the value of the curative effect in neurosyphilis. He claims priority in its use to relieve the pain of gastric crises.



# JOE MORSE & CO.

## Clothiers and Furnishers

619-621 CHURCH STREET

FACING CAPITOL BOULEVARD

NASHVILLE :: TENNESSEE

*Quality Pure*  
**PERFECTLY PASTEURIZED**

# MILK

EVERY Medical School in This Country Teaches  
Pasteurization of Milk as a Health Safeguard

VISITORS WELCOME

**ANTHONY PURE MILK CO.**

504 Woodland St.

Nashville, Tenn.

# THE JOURNAL

OF THE

## TENNESSEE STATE MEDICAL ASSOCIATION

DEVOTED TO THE INTERESTS OF THE MEDICAL PROFESSION OF TENNESSEE

ISSUED MONTHLY, Under Direction of the Trustees

H. H. SHOULDERS, M.D., Secretary and Editor

W. M. HARDY, M.D., Asst. Secretary-Editor

OFFICE OF PUBLICATION, 510 DOCTORS BUILDING, NASHVILLE, TENNESSEE

Volume XXVIII

APRIL, 1935

No. 4

### SOME OBSERVATIONS CONCERNING THE PROBLEMS OF MEDICINE IN TENNESSEE\*

J. O. MANIER, M.D., Nashville

**Y**EARS AGO, when medical organizations such as ours came into existence, their major objective was to foster scientific medicine, and, through such meetings as this, to afford an opportunity for discussion and interchange of ideas upon ethical practices and scientific matters to the end that doctors might be improved in their professional skill and the public benefit therefrom. Until recent years the affairs of this society could be satisfactorily conducted by its executive officers and the Board of Trustees alone between the annual meetings, at which time the House of Delegates in session would review the affairs of the preceding year, make recommendations for the coming year, etc. Under this form of management the association prospered despite the fact that the rank and file of its membership knew in detail but little of its affairs and concerned themselves only with the scientific program as presented at the annual meeting.

However, a steadily increasing number of problems affecting the organized medical profession have arisen, and the magnitude and scope of these as well as the risk entailed by some of them is such that no longer can executive officers or a Board of Trustees or House of Delegates meeting at rare intervals during the year dispose satisfactorily of such matters affect-

ing the welfare or in some instances even the very existence of our profession. In other words, whether we wish it or not the trend of present-day tendencies in reference to public health, so-called social reforms, and other matters too numerous to mention is such that no longer can organized medicine with safety hold itself behind the screen of science, but rather it must admit that it has a political function as well to perform. This does not refer to partisan political activity—of backing one candidate or one party as such—but rather to a properly planned attitude to political issues which may directly affect us in the practice of our profession, our relation with our patient, and even our very economic existence. There is no limit to the power that can be exerted by such an organization as this so long as its position is founded on sound judgment and unselfishness, and the majority of its individual members are informed as to the problems facing them, and wholeheartedly do their part in the solution of such problems.

As the first step in the development of such a proper political attitude it seems that the individual members of an association should know what has been accomplished each year by its executives and committees and should have outlined to them at least a tentative program for the future, not necessarily for adoption, but rather for the purpose of stimulating thought and

\*Presidential address, read before the Tennessee State Medical Association, Nashville, April 9, 10, 11, 1935.



discussion and creating at least partial momentum for action of one kind or another. And so tonight I wish to devote the time at my disposal to these purposes—in part to account for my stewardship and also to suggest for your consideration ideas for the future that have come to me during the last year incident to my necessarily close contact with the organization itself.

At the meeting in Chattanooga last year the House of Delegates by action set as the major objective of the year the passage of the bill it had indorsed for reorganization of the State Department of Health. By direction no other legislation was to be introduced until the proposed Health Department bill was disposed of, and, acting on the recommendation of the Board of Trustees, the House established a special committee of nine men whose duty it became to contact and pledge if possible every candidate for governor and the legislature prior to the general election. This committee was composed of Drs. John M. Lee, chairman; Robert Sullivan, and H. S. Shoulders of Middle Tennessee; Drs. Battle Malone, J. G. Price, and J. W. Cursler of West Tennessee; and Drs. W. K. Sheridan, E. G. Wood, and M. S. Roberts of East Tennessee. The success of this committee was little short of remarkable, as by January 1 they had secured pledges from thirty of the thirty-three elected members of the Senate and eighty-two of the ninety-eight elected members of the House. No finer service will ever be rendered the association, and it can fairly be stated that the work of these men made possible the enactment of the law desired. And for these reasons the state association owes to these gentlemen a debt that possibly it may never be able to pay.

The membership itself should take great pride in this accomplishment, as most of the detailed work of securing pledges was done by individual members of the association acting on the suggestion or direction of the committee. It is a striking fact that every county society with one exception indorsed the efforts of the parent body, and their individual members effi-

ciently met every request that was made. This should teach us both the value of preliminary organization in meeting political issues, as well as of what united effort we are capable, and assure us what we can attain so long as our objective is sound and untainted by selfishness.

With the background outlined above plus the cordial indorsement of Governor McAlister, no special difficulty was anticipated when the legislature convened. However, after being introduced and passing second reading in both houses, the bill was withdrawn in one for some reason, and it looked as though, despite our preliminary efforts, trouble might be encountered in securing its final enactment. Your local Legislative Committee, realizing its immaturity politically, then asked Dr. E. W. Cocke, Commissioner of Institutions, to assume the responsibility of steering the bill through the legislature. Despite his already heavy duties, Dr. Cocke cheerfully accepted this added responsibility, and within a very few days had changed a possibility into an actuality—such service as this merits public recognition, and it is my pleasure at this time in behalf of the state association to express to Dr. Cocke our deep appreciation of his successful efforts.

Immediately after the passage of our Health Department legislation, in keeping with instructions of the House of Delegates, your Legislative Committee had introduced a bill to amend the present Medical Practice Act. This amendment made no change in the existing law beyond providing that the members of the State Board of Medical Examiners should be appointed by the governor from nominees certified by the House of Delegates of this association rather than as at present by purely gubernatorial choice and appointment without restriction.

The reasons and desirability for the proposed procedure are quite obvious, and it would seem logical as well. In the first place, it would remove such appointments from the sphere of political patronage—a state of affairs to be devoutly desired since this board alone has the power not only to license physicians, but to revoke licenses

as well. In the second place, it would certainly seem that the physicians of the state should be far better informed as to what members of their own profession were best fitted for membership on such a board than could any governor whose knowledge could only be that of the ordinary layman. And finally it is desirable that this board be at least under the advisory control of the House of Delegates, since it is the only existing body with authority to literally purge the profession of members whose conduct does not justify them in remaining within the profession of medicine.

The present practice act enumerates in detail eleven counts, any one of which constitutes unprofessional or dishonorable conduct and is a proper cause for revocation of the license of the offender. Prominent amongst these legal causes for revocation is violation of any law of the State of Tennessee and the United States of America as regards prescribing, dispensing or distributing narcotics.

In recent years in a number of states physicians have been convicted of such offenses, have served their sentences, and then returned to civil life and practice to not infrequently repeat their offense. As a result the federal government has taken cognizance of such conditions, and has announced that, unless the profession in the different states can purge itself of its criminally convicted members, a federal law will be enacted setting up a board to determine what physicians may or may not prescribe narcotics. Such action of course would mean state medicine in its most rigid and vicious sense. For if the government can select who is to prescribe narcotics, it can just as logically tell each physician what type of work he is to do and what patients he is to care for. Once such control is instituted there will be no end to its ramifications.

There is a mistaken idea to the effect that our present practice act has not enough teeth in it in view of the fact that some years ago the Supreme Court of Tennessee reversed the action of the Board of Examiners when they had revoked the license of a physician who had been con-

victed of violating the Narcotic Act. It is true that the Supreme Court took such action, but in the opinion rendered upheld the fact that conviction on a charge of violation of the Harrison Act was ample and proper cause for revocation by law, but in the case under consideration the procedure of revocation had been illegal in that the individual in question had not been given an opportunity for a full and complete hearing by the Board of Examiners before his license to practice was revoked.

At the present time our bill has passed second reading and is in committee, with no chance of being enacted into law, as it is understood that the administration is opposed to its passage.

So long as men remain in the profession of medicine who legally have no right to such a position, we can expect nothing but criticism from the public as well as probable discipline from governmental sources.

Later in the session there was introduced into the legislature a bill to regulate the practice of nursing. Masked under the plea of merely desiring legislation to insure reciprocity, this bill in its original form was both dangerous and vicious, as it conferred on a board composed predominantly of nurses the power not only to enforce, but also to make laws such as those governing the requirements to be met by schools of nursing before their graduates could take the Nurses State Board examinations, the hours a nurse graduate or undergraduate should work, etc. This bill had in it the possibility of damaging tremendously the training schools of the smaller hospital and especially those of the rural communities. Fortunately, however, before finally being passed it had been so amended that practically all of the risk had been removed from it.

My reason for mentioning this matter is to as forcibly as possible call your attention to one fact, *i. e.*, that in 1934 your House of Delegates took action that only the Legislative Committee could speak with authority as representing the opinion and desires of the state association on legislative matters affecting the practice of



medicine, and further requested that individual members seek information from the Legislative Committee before committing themselves on any such legislative questions. Many doctors over the state signed an indorsement of the above-mentioned nurses' bill—most of them without having ever read the bill in question, and having no knowledge of its content other than that they had been told it had to do with reciprocity. Such thoughtless action on the part of many of our members served only to make heavier the burden of your Legislative Committee. If we are to successfully meet the problems of the future, we must face them with a united front both as regards pending legislation and also as regards candidates and their attitude toward possible future legislation affecting directly or indirectly the practice of medicine.

It may be and is of course distasteful that conditions have arisen that force us to give time and thought to matters political as well as scientific, but it must be admitted that unless we protect ourselves and our established rights then no one else will. And the time to oppose abuses is without doubt before they are enacted into law. Hence, it would seem worth while to give some thought as to whether it would not be wise for our Legislative Committee to be instructed to see to it that in the future all state candidates for state and national office prior to their election be contacted for an expression of opinion on those matters concerning the present practices of medicine and the membership informed as to the position taken by the individual candidates through the pages of the JOURNAL.

The passage of the law creating a Board of Health is only the initial step in improvement of health in Tennessee. To use a simple illustration, it is similar to engaging an architect to plan and supervise the building of a house. Under such circumstances, you inform the architect as to what you do not want and do want, and, acting on your suggestion, he draws up a series of plans conforming to your ideas, and with your approval proceeds to employ a contractor, and through him the necessary labor, supervise the materials

used, the quality of work done, and finally the cost of the project.

It cannot be stressed too often nor too strongly that the Board of Health is in reality your creature since you nominate the men from whom a majority of the members of the board are appointed, and, since it is as yet a young child, you should not allow it to grow apart from you, but rather from time to time offer it advice as to dangers to be avoided and objectives to be attained, and at all times place at its call your services individually and collectively. Without such an intimate relationship, your board is, technically speaking, "on the spot," and cannot hope to justify the purpose claimed for its existence, *i. e.*, to improve public health in Tennessee.

Under the regime of the commission type of control of the Department of Health, there grew up a number of practices which were contrary to sound judgment and fairness. This statement is not made as a criticism of the commissioner, but of the practices themselves, so that you may be informed as to them and so be in a position to lend your influence and support in urging your Board of Health to abolish them.

Amongst the earliest reforms that it is to be hoped your board will institute is to take steps to prevent even the possibility of suspicion of subsidization of the office of Commissioner of Health. Under the old regime the Commissioner of Health received his salary as legally authorized from the State of Tennessee, and in addition an "honorarium" for teaching in one of our medical schools, as well as "consultation fees" from one or more of the extra state funds which contributed to the health program in Tennessee. Though probably no intent of subsidy was involved in these practices, suspicion must inevitably arise when one considers that the number of hours devoted to teaching was no larger than those given by other men in civil practice receiving no such honorarium, and the further fact that of necessity teaching institutions with their attendant hospitals compete to some extent with the private physicians over the state for patients. It is also worthy of note that several of the

extra state funds contributing to Tennessee's Department of Health were openly supporting financially and otherwise socialistic changes in the practice of medicine.

Nor should the Commissioner of Health on his own initiative enter into negotiations with federal authorities concerned in Emergency Relief Work with the object in view of drawing up regulations to govern the service to be rendered by physicians in private practice to individuals on relief nor the pay to be received for such service. Especially is this true if such action on the part of the commissioner is in conjunction with members of the medical profession who not only have not been authorized to act officially in behalf of the membership of this association, but in the recent past have been known openly and under cover to have opposed most of the legislation indorsed by the state association.

Matters of this nature and as important to the welfare of the general body should first be presented to the House of Delegates for approval so that subsequent negotiations with federal authorities can be carried on through the medium of a committee duly appointed by the House and definitely instructed by that body as to its powers. Commissioners of health and county health officers, while filling a much-needed and proper niche in the structure of health in a state or county, as the case may be, are so far removed from the problems of competitive private practice and caring for sick people that they could scarcely be expected to have the vision to draw up a plan that would be practicable in application and at the same time fair to the physician rendering the service in question.

Probably the greatest error the federal government has made during the last two years in its effort to extend medical relief to the needy has been its failure to recognize that the personnel needed to successfully administer functions essentially medical in character must be one having technical knowledge not available to those without medical training and experience in the actual practice of medicine.

It is to be earnestly hoped that the Board of Health will take action to prevent any of its personnel from entering into such negotiations, as such action on their part could only serve to create friction and ill feeling. And it would likewise seem advisable for the House of Delegates of this association to notify the proper emergency relief authority that only it or its duly authorized representatives could speak or negotiate with authority as representing the doctors of the state. Loyalty should be demanded as a necessary trait on the part of all employees of the Department of Health—not loyalty to any individual, but rather loyalty to the broad principles of operation set up by the board for the improvement of public health. Since the enactment of the law creating this board some months ago, not infrequently reports have come to hand of remarks made by certain of the heads of some of the subdivisions of the department to the effect that two years from now the work of the present legislature would be undone and the board as it now exists abolished. Such an employee is not only disloyal, but destructive as he or she, as the case may be, is to a large degree receiving money under false pretenses as a result of trying to undermine the department which they are being paid to upbuild.

The question of state aid to county units should be regulated so that the state participates only up to a known maximum in any county, and that no longer as in the past are certain favored richer counties to be allotted unusual sums simply because their financial condition enables them to match the larger amount. Establishing a maximum limit for any one county would enable more counties to be extended aid, and hence more units be created. Certainly the ideal to be attained is a county unit in every county in the state. Your Board of Health has taken a long step in the right direction by adopting two regulations in reference to state aid to county units: *i. e.*, (1) that no effort would be made through state funds to organize a unit in any county unless the county medical society, or, if no such organized body existed,



then the medical profession of the county, first approved of the formation of such a health unit; and (2) that the extent of work the unit should perform, especially in reference to immunization, should be determined by mutual agreement between the local profession, the county unit, and County Court. Such regulations are highly constructive since they tend to make of the profession and the county unit an effective harmonious whole directed against disease, and yet at the same time take recognition of the fact that the scope of work of a unit in one county may be quite properly different from that in another and further remove the inherent danger to personal liberty involved in any extensive organization under one central control. It is interesting to note that the above principles are in effect in many states that extend aid to county units, and that in addition some such states after a few years begin a gradual withdrawal of state funds over several years' time until only a minimum, such as one-fourth or one-third, of the original grant is left as a permanent aid.

The majority of the Southern states in one way or another participate in county unit work—in most instances limited to a maximum of \$2,500.00 or less, in a few cases to the extent of 50 per cent of the budget of the county unit program, etc. In the majority of states the principle of gradual withdrawal of state funds down to a stated minimum seems the commonly observed policy.

The functions and activities of a modern State Department of Health are so numerous and manifold that one could not even enumerate them all in the time available tonight, much less discuss them. Some of these activities can be carried on successfully by the Board of Health and the department alone, while in others no satisfactory progress can be made except through the combined effort of the Department of Health and the medical profession working hand in hand. Some members of our association have felt that once we had a Board of Health then matters pertaining to public health could be left entirely to

the board to solve. Nothing could be farther removed from the truth, and unless we as individuals do our part we cannot hope for any long-continued existence of the board for the establishment of which many of you worked. The philosophy of changing any form of governmental control is usually and should be based on the belief that such a change would improve conditions, and unless such an objective can be attained then usually such changes are short-lived.

In what respects then can improvement be hoped for by having changed the form of control from a commissioner to a board of health? Many answers might be made to this question, but I wish only to use one illustration tonight in that it shows clearly two points—(1) the inability of a Department of Health alone to attain a desired objective and (2) the very definite possibility of such attainment through the coordinated orderly effort of both the department and the profession working together.

I have reference to the control of one infectious disease, *i. e.*, diphtheria. No one denies that at the present time medical science has developed protective measures against this disease which, if applied properly and extensively, should make it a medical rarity. In fact, the possibility is so available that the occurrence of this disease should be considered not only a tragedy, but a disgrace as well.

Examination of vital statistic figures on incidence and mortality in this disease reveals many interesting facts and lines of thought. Despite all the publicity that has been given to diphtheria inoculations during the past eight to ten years, there has been but little sustained improvement in morbidity and mortality figures in Tennessee. In fact, in the last three years there has been an approximate increase of 30 per cent over the preceding similar period. It is also a striking fact that in 1933 74 per cent of the deaths from this disease occurred in children under five years of age.

It requires no great imagination to understand and explain these figures. Dur-

ing the last ten years there has been a steadily growing tendency on the part of health departments—state, county, and city—to gradually assume more and more the responsibility for immunization against such diseases as smallpox, typhoid, and diphtheria. In fairness, however, this statement, though true, cannot be said to be entirely critical of the varied health organizations, as two facts stand out clearly as at least contributory to this attitude—*i. e.*, (1) the universally admitted fact that public health must always be protected by every proper means at hand and (2) the fact that the medical profession was unable on its own initiative to apply such protective measures as universally as might have been done. This was due to the fact that the public is often slow in availing itself of many of the advances made in medicine, and that the featuring of such measures by health agencies, as more or less a gift to the public, made it difficult for the private physician to cooperate to any material degree in the program of immunization. Much can be said by either side in reference to the inevitable conflict that arose, but we are not so much concerned with that phase of the subject now as with the results that followed.

Public health contact, insofar as immunization is concerned, comes not as the physicians' contact with individual families, but rather with groups of children, and, of course, schools offer the earliest extensive possible group approach. As a result of health officials' activities in inoculating children against smallpox, typhoid, and diphtheria in their early school grades, there gradually grew up amongst the parents of the child a belief that such inoculations were almost a part of the curriculum of the first grade and that there was no necessity of seeking protection for the child at an earlier age. What a tragedy, when it has long been known that susceptibility to diphtheria is greatest at one year of age and gradually diminishes as years pass by, while children under five years are just as susceptible to typhoid and smallpox as at any other age era. Were it possible to secure universal immunization of children

during their first year or so of life against these three diseases, diphtheria would almost entirely disappear within a few years and smallpox and typhoid become much less frequent.

In my judgment no more constructive approach to public health and welfare could be featured by your Board of Health than the above program. But it cannot too often be reiterated that the success or failure of such a plan would in the last analysis be placed in the hands of the profession, where all such matters of health belong.

Plans are now being drawn to put into operation the machinery to accomplish the needed results. Your Committee on Education in its report to the House of Delegates is requesting that body to mandatorially instruct its successor committee that its first duty shall be at once to arrange for speakers to appear before each county society to discuss methods of immunization and illustrate the technic of their administration as well as such tests of immunity as the Dick and Schick test. In this way the vast majority of physicians in Tennessee will have the opportunity of securing instruction in these procedures and becoming equipped to carry them out.

The Board of Health should be requested and is expected to do its part in this campaign by furnishing to physicians biologicals for immunization, to have its organized units or else the responsible officer in each county set up a birth register and at the proper time to notify the parent and physician that it is time for the child to be inoculated, to follow up such notification by further letters and personal visits by the nurse of the unit, to organize lay organizations and secure their aid in furthering the program of immunization at all ages, to arrange with the profession for a satisfactory method of caring for the immunization of the indigent, too.

Such a program when once put into effect will do much toward curbing both the morbidity and mortality of the diseases mentioned, but it should be only the first step in the movement to improve health conditions in Tennessee. Later on in the year it is the purpose of your Committee on Ed-



ucation to carry to the county societies advanced knowledge on such matters as infant welfare, prenatal maternal care, the cancer problem, tuberculosis, the venereal problem, periodic health examinations and to secure the same setup of assistance from the health units as outlined above—the approach, of course, being modified in each instance to fit the problem under consideration.

I realize that the plan outlined above is an ambitious one, and that it is not possible to put it into operation in anything like its entirety in a year. But I submit to you that no fair-minded person will question its soundness, and I would call to your attention that, if the medical profession wishes to control such problems as those mentioned, we must handle them ourselves, or else ill-informed lay organizations will take them in hand and in many instances harm the public as well as our profession.

In preparation for this program your Committee on Education during the past year has spent much time in planning and study, and in addition has organized a number of multiple county societies. Many of these organizations have functioned excellently during the year, and they constitute one of the foundation stones of the plan which has been outlined above in that they furnish consolidated groups of county societies to which the problems mentioned can be carried, and to which at a later date it is hoped real postgraduate education can be furnished.

It is to be hoped that the Committee on Education in conjunction with the Board of Health may go one step further and be able to inform the public as to many of the problems facing the profession of medicine at the present time, as well as give to the public certain much-needed information it should have as regards many medical matters. In the past, individual members of our profession have often hesitated to meet this latter problem because it was difficult to do so in an impersonal manner without incurring the criticism of self-exploitation. The time has come, however, when the welfare of both the public and the profession demands a closer liaison be-

tween the two. And since for years it has been our problem to understand the medical needs of the public, it is now incumbent upon us to see to it that the public becomes equally well versed in our problems and needs. The consummation of this theory is one of the most necessary steps in the prevention of the early socialization of medicine and the regimentation of patients and the medical profession.

Much can be done by the individual doctor in aiding the attainment of this objective, if he will inform himself in reference to present-day economic problems so that he can intelligently discuss them with his individual patients, when they come seeking information, as inevitably they will after first receiving certain broad general principles from such an organization as a Board of Health. Knowledge of this kind can be attained from general reading and by allowing proper space at our scientific meetings for the presentation and discussion of subjects bearing on the economic problems of the practice of medicine.

It cannot be too often stressed that at present there are a number of agencies apparently well equipped with funds spreading a very insidious type of propaganda in an endeavor to influence both the public and the profession in accepting their radical doctrine. As an example of this might be mentioned an article in a recent issue of *Today*—a publication edited by Raymond Moley—until recently one of the members of the so-called “Brain Trust” in Washington. This article accuses the central office of the American Medical Association as opposing *in toto* every type of health insurance, and further states that the attitude of the American Medical Association “no longer represents the opinion of the most thoughtful men in the profession”; that many of the constituent societies have repudiated the position of the parent body and are experimenting with systems of social insurance.

Like all propaganda this has just enough fragments of fact to enable it to impress the superficial reader. Of course, the Board of Trustees of the American Medical Association has occupied a conservative position on matters relating to social medicine

and has refused to follow the lead of radical-minded individuals who from time to time have advocated all types of untried schemes. But at the same time, through its Bureau of Medical Economics, the association has made careful studies of all types of health insurance which have been tried or suggested either in this country or abroad; and the information gleaned from these studies is open, not only to any member of the association, but also has been offered to the federal commissions considering this problem.

The answer to the accusation that the association's attitude no longer represents the opinion of the more thoughtful men of the profession is contained in the recent action of the House of Delegates of the association at its called meeting in February of this year. With 162 out of 168 possible delegates from the continental United States present, this body without a dissenting vote adopted the report of its Reference Committee, which, among other things, approved the following principles:

1. That regimentation of the medical profession and lay control of medical practice would be fatal to medical progress and the quality of service now available to the American people.

2. That physicians are the only individuals in the United States qualified by experience and training to guide and suitably control plans for the provision of medical care.

3. That all forms of compulsory sickness insurance—no matter by what agency administered—should be frowned upon, but that local medical organizations should be encouraged to establish plans to provide adequate medical service to all people through voluntary budgeting to meet the costs of illness, and that in the establishment of such plans county medical societies should be guided by the ten fundamental principles adopted by the House of Delegates in 1934.

No one with judgment can deny the sanity and soundness of the above principles, and if the constituent societies as well as the individual membership of the association will give thought to these principles in the light of the need of their own com-

munity much good can be accomplished and evil prevented. The trend of modern thought in this country at the present time justifies the belief that in the near future some form of legislation—state, federal, or both—instituting some type of health insurance will become a reality. In order to protect the public as well as ourselves it is necessary that our attitude be one of guiding cooperation rather than of obstructive opposition to any and all plans that may be suggested. Naturally no universally acceptable plan can ever be developed, but as a profession we must learn the lesson of submerging our own personal opinions and differences as regards details in an effort to present a united front of agreement insofar as the acceptance and support of the broad general principles outlined above are concerned.

Though there are many inherent dangers in any system of compulsory health insurance under political federal or state control, it must be admitted that it is more than possible that a system preserving such principles as the right of voluntary participation, economical administration and absence of commercialization, freedom of choice of physicians, maintenance of the present existing patient-physician relationship, etc., might be productive of great good.

And it is to be sincerely hoped that the membership of this body will realize its responsibility in this matter and prepare itself to meet this responsibility by first informing itself, next endeavoring to educate the public in its daily contacts with individuals, and finally in wholeheartedly supporting the program that from time to time may be developed by the parent body.

In conclusion, I cannot let this opportunity pass without expressing to you my deep appreciation of your splendid cooperation during the past year as well as your kindly tolerance of my many shortcomings. No man, in my judgment, can occupy the executive position in this organization without coming to realize what an unusual type of membership it has and developing a sentimental attachment to it and its individual members that time can only serve to increase and intensify.



## WILL AMERICA COPY GERMANY'S MISTAKES?\*†

Results of Half a Century's Practice of Social Insurance in the Land of Its Inception  
*German Labor Economist Offers New Plan to Avoid Pitfalls of Old One*

GUSTAV HARTZ

### FOREWORD

"THE proof of the pudding is in the eating thereof."

If compulsory social insurances are desirable, as the powers that be in America today seem to think they are; if they are to be amplified and pyramided in the hope of improving the condition of the people as a whole by promoting peace, contentment, and security, there should be unmistakable and indubitable evidences of these highly desirable ends in the older countries of Europe, where social insurances originated and where they have been in actual operation over a long period of years.

This pamphlet is a brief resume of two books written in German by Gustav Hartz, of Berlin—*Irrwege der deutschen Sozialpolitik*, published in 1928, and *Bankbuch Statt Almosen*, not yet in print. The titles translated mean *Errors of Germany's Social Politics* and *Bankbook Instead of Alms*.

Feeling that our legislators should be fully informed before committing themselves to irrevocable mistakes, the Pennsylvania Self-Insurers' Association persuaded Mr. Hartz to attempt a digest of his studies, covering half a century of practice in Germany.

First, a word about Mr. Hartz himself. He was a workman and his father before him was a workman. Orphaned at the age of 11 years, he was taken in by a peasant neighbor, who brought him up at the expense of the national welfare funds. His youth was one of grinding poverty and hard work. At the age of 18 years, he joined the clerks' trade union and rapidly rose to leadership in the organization.

Until trade unions were abolished under Hitler—an inevitable result of government

management, which some of our own labor leaders do not seem to realize—he continued to be one of their outstanding spokesmen.

Mr. Hartz served through the war and received the Iron Cross for gallantry in action. He became a member of the Reichstag, and is at the present time connected with the largest publishing firm in Berlin.

His books are written from the workmen's point of view, not the employers', and they are based upon a study of facts and procedure which has given him a place as one of the foremost economists of his country.

He is not one of those who would tear down something and leave nothing in its place, but he has a plan of his own which he considers infinitely superior to social insurance, namely, compulsory savings. He proposes that every worker be compelled by law to save a certain percentage of his earnings, deposit them at interest in his own name in a bank under government protection, and out of them take care of his own rainy days, create his own security.

The plan is quite ingenious and was receiving the serious consideration of the Nationalist party leaders before they and all other parties were overthrown by Hitler and his Nazis.

Mr. Hitler himself seems to be well aware of, and to some extent in sympathy with, Mr. Hartz's ideas, for he is ruthlessly revolutionizing management and policies of the bankrupt funds, and has even abolished unemployment insurance for domestic servants, because he discovered that it, in turn, was abolishing domestic employment.

Of course, the same tendencies, if not in the same degree, must ultimately be felt in all other lines of human endeavor, for whatever increases business hazard dampens business enterprise.

We submit this pamphlet for the edifica-

\*Written and translated for the Pennsylvania Self-Insurers' Association, Finance Building, Philadelphia.

†Reprinted by permission.

tion of those who are still able to subscribe to the fine old motto on the walls of our House of Representatives at Harrisburg:

"Ye shall know the truth, and the truth shall make you free."—WALTER LINN, *Secretary. Finance Building, Philadelphia, January 10, 1935.*

\* \* \*

Almost exactly 50 years ago, the first law of modern workmen's insurance (social insurance) of the world came into force. It was the law referring to sick insurance for industrial workmen in Germany. Starting in Germany the idea of social insurance spread slowly, but ultimately found its way into many states. It became the basis and cornerstone of modern workmen's social politics.

When, under the great statesman Bismarck's chancellorship, social insurance was first introduced, he was, and not without reason, warned against taking this "jump in the dark," for nowhere did any experience in the matter exist.

Now, the introduction of social insurance no longer means jumping in the dark; we look back upon an experience of 50 years that points out the way to real social politics—and at the same time shows how they should not be made.

It is not advisable to give ear to the biased experiences of advocates of social insurance who, in many cases, draw profits therefrom, for there is no institution in all the world that is so much extolled and the praise of which is so little justified as social insurance. The cause for this praise is to be sought in its sound ideas and good purposes, which none but those devoid of all moral sense can dispute. Who could be hardhearted enough to stand by and watch a fellow creature starve or drown, had he the power to save his life?

Help in need is a matter of course based upon Christian charity and morals.

No one can deny that this is the soil from which the idea of social insurance sprang; this, coupled with the consideration of clever, farseeing statesmen who recognized in increasing poverty and dissatisfaction a danger for the state which they

wanted to evade. The motive for the introduction of German social insurance was a very simple one which has, in its fundamental idea, become typical for all states, however much the outer causes and the strength of the single reasons may differ.

Owing to the rapid development of industry the number of industrial workers greatly increased and went on increasing. They crowded more and more into the big towns and industrial centers. The conditions of life were none too good. Wages were low and the workmen had no resources to fall back upon. The industrial proletariat, whose only capital was their capacity to work, had sprung into being. Should they lose their working power entirely, or even temporarily, their families would be faced by dire want. They would be destitute, have to rely upon the charity of their fellow men, or would be forced to accept the help of the community. And the life of those who were lucky enough to have work was clouded also by doubts concerning the future.

Among these discontented masses the firebrand of the doctrines of Marx, attacking the state and the existing social order, was flung. Though the socialist laws forbade Marxist organizations and open propaganda, the doctrines crept in through a thousand channels, finding a fertile soil among the proletariat, and took on dimensions that threatened to endanger the state.

These state-political reasons were primarily decisive in the establishment of social insurance.

The state wished to relieve the workmen of the anxiety for future disability, when they might find themselves without earnings. It also wanted to put an end to their grumbling, to crush revolutionary aspirations; in short, to turn the workmen into contented citizens.

Added to this was a high sense of moral and religious duty, a feeling of charity, and the state leaders' sense of responsibility for the poorer classes.

To consider unemployment insurance an achievement of recent years, to call it the "crown of social insurance" is a mistaken view, for every social insurance is an un-



employment insurance, whether the unemployment is due to illness, accident, early incapacity, old age, or to being out of work.

The introduction of social insurance has at all times and everywhere been caused by too dense a population that has got into trouble through loss of wages, and was unable to bridge over the time of waiting from its own private means. Whether that class came into existence through the colossal social transformation in Germany 50 years ago, or now, owing to the devastating economic world crisis brought about by unemployment, is of small importance.

It must be stated here that neither unemployment, accident, incapacity, nor old age created the necessity for the state's establishing social insurance. Ever since the beginning of civilization the lives of all humanity have been accompanied by such hazards—that of the millionaire as well as of the proletarian, of master as well as of man, of the head of the state and the crossing sweeper, whereas social insurance is but 50 years old. I have never heard of a state introducing a sick and old-age insurance for millionaires or an unemployment insurance for manufacturers and other employers, although in all states there are many to be found who not only work without profit but even at a considerable loss. And yet sick and old millionaires have certainly been known to exist. Are these citizens of smaller value to the state leaders that they are passed over by social welfare?

The reason for this is of an entirely different nature. Those people have their resources, they are provided for by their own private means. Should the state make provision for sick millionaires or be willing to allow employers 50 per cent of their losses at times when they are making no profits, the statesmen supporting this plan would certainly be considered insane. This representation may seem rather crude but it shows the complaining sick, unemployed, invalid, or superannuated workmen the actual cause that led to the establishment of social insurance. The poverty of the masses!

Destitution in consequence of unemployment that befalls the impecunious is not

really a social malady but rather a reaction, a fever, produced by a deep-rooted social disease, the masses' lack of means. Social insurance is as it were an injection against the fever, which however does not reach the actual seat of the disease. On the contrary frequent injections are harmful to the constitution and aggravate the disease. It may be proved easily that social insurance is not only caused by lack of means, but it even makes of it a social principle, aggravates and spreads it, makes it permanent.

In the past century the opinion prevailed—chiefly in Europe—that for capitalist development it was an absolute law of nature that capital should be concentrated in an ever-decreasing number of hands, until the state confiscated all property, placing the administration in the hands of "society," while on the other hand the number of the penniless constantly increased till all were poor. (This is the direct way to Bolshevism as it exists in present-day Russia, a deplorable end to social efficiency.)

Though the results did not prove this opinion to be correct and the number of capitalists of all countries grew immensely in the last century, the number of the impecunious has, in consequence of the increased population, also constantly grown, giving food to the working classes' dream of everlasting poverty as their irretrievable fate.

Proletarianism! Poverty! These came to be literally worshipped. Honest workmen were made to believe it their solemn duty to be penniless. The words of the French socialist Proudhon "property means robbery" became their motto. Hate and envy of capital and capitalists flourished. The dissension of the classes grew into a class war that shook state and economics to their very foundations.

The instinct given man by nature to hoard for eventual times of need, which forms the basis of accumulating money and of acquiring property—upon this all culture and progress are founded—could only be completely killed by a communistic-socialistic vision in which people were not obliged to put money by out of a sense of self-preservation because they were shield-

ed from the worst, from direct necessity, by social insurance.

The best counter examples are the United States where, until the great crisis started, communistic-Marxian ideas could not strike root among the working classes, simply for the reason that they were not "safeguarded" by insurance, but the workmen, having to provide for themselves, put money by for a rainy day and were therefore in the Marxist-communistic sense not proletarians such as had been carefully bred in Europe.

One might have supposed that in Germany, with the most widely developed social-insurance system in the world, a country where every workman was provided for in all contingencies of life—where the future mother was cared for and the first milk for the infant provided, where the funeral expenses of those the deceased left behind were not forgotten by the social insurance—a social upheaval would be least felt. No proofs need be given for the fact that the reverse actually occurred.

The state-political results expected of the establishment of social insurance, viz., making the workmen contented and loyal citizens, were not only negative, but they actually led to ends opposed to those anticipated.

No doubt these were not the only causes. Social insurance was however so far responsible that the state by relieving the workmen, to a great extent, from the burden of having to provide for themselves, posed as the great "benefactor." This made it the scapegoat upon which all demands, all discontent were thrust. The so-called self-administration of social insurance by the circles concerned did nothing to improve the situation. Discontent and grumbling did not cease; it grew. This arose from the social-insurance principle, which is only able to grant a minimum, and the odium of the insufficiency accompanying it, in connection with which the saying was coined: "too little to live on and too much for starving." From the very beginning the social insurance legislation was scoffed at by the radicals who called it "beggars' soup politics," and they never ceased demanding an increase of the allowances.

That these demands, viewed with the eyes of the workman, were socially justified, and that the name given it by the people was not far from the mark, may be gathered from the following figures.

The average old-age and incompetence annuity at the present time is approximately as follows:

Person insured . . . . \*M 28 [\$7.00] per mo.  
Widow's pension . . . . M 18 [\$4.50] per mo.  
Orphan's allowance . . M 10 [\$2.50] per mo.

Sick allowance amounts approximately to half of the earnings. The same stands for the unemployment insurance.

One can well imagine the feelings of a workman who for years, or for decades, has subscribed high dues but who rarely, in some cases never, made use of the insurances; now that he is ill or has lost his job he has to manage with half the amount of his wages, or in old age gets an insufficient allowance. Must he not grumble at his beggar's dole?

On the other hand the principle of keeping the allowance on an insufficient scale must be maintained. For should the allowance equal the wages the consequences would prove ruinous to the workman's morale if in case of sickness he drew an equally high amount as that earned by hard labor.

These incompatible contrasts are bound to be followed by new struggles. By means of the social insurance "the fatherland was to be supplied with new, lasting guarantees for inner peace," instead of which more and more social struggles ensued, which influenced the formation of political opinions more strongly than anything else.

In states governed by parliaments with equal votes for all, the opposition, unembarrassed by responsibility, use social-political aspirations as the most efficient auxiliary for canvassing among the working classes. Whosoever promises most gets the most votes and with them the greatest political power. Social democracy in Germany, until its collapse, owed a great deal of its success to social insurance. Social

\*Exchange on gold standard 4.20 marks to the dollar.



insurance was created in the struggle against social democracy. It became the strongest aid in forming political opinion in their favor. To use their own words, it got to be the "fourth pillar of their power."

All political groups happening to be in power have been, again and again, in consideration of impending elections, compelled to make concessions incompatible with reason and without economically sound foundation.

Though the greatest social crisis the world has ever seen may have been caused by many other factors, particularly by the war and the divers new phases brought about by it, that destroyed property accumulated in many generations, and by which a considerable part of social fundamentals were destroyed, the extent of the crisis in many countries did not become so great in spite of, but on account of, the existence of social insurance.

The social crisis has not been alleviated but, to the contrary, has been considerably aggravated by social insurance.

Woe to the state which imagines that crises may be alleviated or stopped by the introduction or the existence of a comprehensive system of social insurance! Sad disappointment awaits it. Every economic crisis swallows up the best organized social insurance and consumes its funds at both ends—at the end of the diminishing premiums and at the end of the increasing benefits.

The reason for this is chiefly that the greatest number of social insurances are not based on actuarial reserves as in the case of life insurance, but on a system of funds sufficient to cover the demand. They do not accumulate in long spaces of time a sufficient capital for future payments, but they live from hand to mouth. This method takes the premiums with one hand from the healthy and the employed and pays it at once with the other hand to the unemployed and the sick. Small reserves by no means improve this condition.

In the unemployment catastrophe the results were as follows: The number of unemployed increased with startling rapidity while that of the workmen still employed

and paying premiums was continually diminishing. These premiums no longer sufficed and had therefore to be raised. They went up from 3 to 6½ per cent of the wages. In the most critical time, when benefits were being reduced and economic expenses increased, the wages were cut still more. To raise the premiums still further was simply impossible, and thus the allowances had to be repeatedly decreased. This procedure in each case increased the social tension.

The same methods had to be applied to sick insurance and old-age pensions, for the increasing unemployment resulted in a rapid diminution of premiums, while the expenses of the former remained almost the same and of the latter increased incessantly. The disability insurance was insufficiently covered, due to loss of capital through the inflation and increased allowances. Having been reduced to the apportioning system, it lived from hand to mouth.

Business concerns were no longer able to pay the accident insurance dues. In some trade associations 50 per cent of the rates had to be obtained by levy of distress. The miners' pensions were repeatedly on the point of stopping payment. In the time of her hardest social crisis, social insurance was Germany's greatest inner trouble.

The saddest inner-political heritage the new German government was forced to accept was the social insurance, the most vital part of which was on the point of collapse.

Not only in times of economic stress does the apportioning system heighten the crisis, but also in times when economics are on the upward grade, for then increasing receipts and decreasing expenses form a great temptation for raising the allowances, besides which it may lead to many unnecessary capital investments.

It was in this way that the budget of the sick insurance rose in the years of apparent prosperity to the extent of 200 millions annually, reaching in 1929 the fantastic sum of 2,300,000,000 marks. In 1913 the budget of the sick insurance was still 660,000,000 marks. The same thing was to be found everywhere. In 1913 the budget of the entire social insurance system was 1,300,000,-

000 marks; in 1930, approximately 6,000,000,000 marks.

And this without the expenses of public welfare that finally bore the greatest part of the burden of unemployment. The entire social budget, namely, social insurance plus welfare, amounted to 2,100,000,000 marks, in 1913, but in 1930 this budget reached 10,800,000,000 marks.

But when the economic crisis came the promised and vested payments could not be kept up.

In treating with this subject we should constantly bear in mind that social insurance is a legal contract, based upon premiums paid and guaranteeing definite benefits, whereas voluntary relief is always at liberty to adjust itself to circumstances.

In Germany, nevertheless, the legally reinforced social insurance contracts then had to be changed and partly cancelled, and the "legal rights" only continued to exist on paper.

Yet it was the legal claim which had been played up as the real progress in social security.

In true insurance, the amassing of adequate capital is only possible when an approximate preliminary calculation of the demands can be made, as in the case of life insurance, which is based on mortality tables and similar actuarial statistics.

The risk of unemployment cannot possibly be mathematically calculated. Unemployment is a risk actuarially unascertainable. The name employment *insurance* serves to mislead public opinion. It should be called unemployment reserves, where the persons concerned bind themselves to pay a certain contribution, and where they are told: If you are unemployed you may "perhaps" get so and so much, but maybe only so and so much. Fixed amounts can, of course, be promised, but should the sums be insufficient the premiums must be raised.

To establish an unemployment *insurance* and to promise an unemployed man certain fixed payments against certain premiums—any mathematician who goes into the problem and declares it sound ought either to be knighted or hanged. I should certainly vote for the latter proceeding, knowing him to

be a swindler. Or else an "insurance" is made where every payment the single individual receives is strictly limited to the amount he has paid in, and then ceases. But then he would be just as well off if he himself saved his premiums.

In Germany the most firmly convinced fanatics on social insurance—such people do still exist and in most cases they fare very well—are even now sure that unemployment insurance "is not an insurance really." In 1927 this "crown of social politics" was introduced, with fixed premiums and fixed benefits. Three or 4 years later nothing was left and all that remains of unemployment insurance today is its name. Now, the welfare principle is applied for the unemployed: Insurance allowance without examining the necessity, namely, with legal rights for 6 weeks only. Juveniles and working women have no legal claim.

The period for which benefits are made must, of course, be limited, as with a subscription of  $6\frac{1}{2}$  per cent of their wages not all unemployed can be supported. The greater the number of unemployed the lower the limit must be set. At first the allowances were made for 26 weeks, now for 6 weeks. As in this crisis unemployment frequently lasts for years, most of the unemployed no longer receive any allowance. The unemployed insurance at present scarcely supports one-third of the army of unemployed while the other part is supported by the welfare and the crisis centers. The same was the case before social politics had their "crown" put on. These institutions draw their funds from the state revenues.

Thus the communes had to bear the chief part of the burden the same as before. It is a curious fact that the communes tried to cast off the burden by finding work for part of the unemployed, until the latter had paid their premiums into the unemployment insurance, thus gaining a fresh legal claim. Then the same thing could begin all over again.

That is the curse of the evil done by trying to force something into insurance formulas that is uninsurable.

It is not in the least different with the sick insurance. The unevenness in the



business level, the seasons, holidays, a change of work, failing health, and many other things contribute to bring about a noticeable change in morbidity. Since the sick insurance has been in effect, the average number of days of incapacity to work owing to ill health has risen from  $5\frac{1}{2}$  to 28 days, although health in general has considerably improved. In the strict sense of the word the sick insurance is no insurance either. From a technical and mathematical standpoint it is also quite unsettled in view of the moral hazard noted above.

This is clearly seen when considering that the individual insurance case, whether due to illness or unemployment, can be wilfully caused or extended. Where is the border line between illness and health, between mere indisposition and illness, between dread of getting ill and bluff? And if the insured person is really ill, where is the border line between ability or disability to work? How can the duration of an illness be fixed?

Illness is the most incalculable risk in existence.

Even the doctor is mostly, or at least frequently, unable to diagnose correctly and to distinguish pretenders and hypochondriacs from really sick people, or rather to tell whether a man is fit to work or not.

The same stands for unemployment. It can be ascertained if and when a man lost his job, but not whether he refuses work that is offered him — maybe because the work does not pay well enough—or whether he does odd jobs and thus finds other sources for earning money.

Also, the degree of diminished ability to work, due to an accident, can only be guessed at.

Of all the risks in social insurance only old age, death, and number of dependents can be exactly established. These are therefore the only cases in which an unobjectionable actuarial basis and an unquestioned legal claim are possible. Everything else is hazy and uncontrollable.

And on this unstable foundation was based a legal "claim!" Thus in millions of cases, wrong was turned into right and the gates opened wide to fraud.

I can here speak only briefly of these things. Additional material may be found in my books: *Irrwege der deutschen Sozialpolitik*, Scherl, Berlin, 1928; *Die Nationalsozial Revolution, die Lösung der Arbeiterfrage*, I. F. Lehmann, München, 1932; *Bankbook Instead of Alms* (will appear shortly).

What is decisive in judging the merits or the worthlessness of social insurance is not brilliant theories interspersed with sentimentality and false humanitarianism, but the rougher language of practice. A few words on that subject:

The sick insurance provides the workman with medical attendance free of charge, with medicine and other necessities, and with an allowance.

Anyone will at first sight consider this a great blessing for the workman as well as for national health. The reality, however, is very difficult.

Dread of illness obsesses most people and this has been pressed into a system "illness made easy" by which the will to be well is strangled. The doctor is consulted a dozen times where once would be sufficient—the insurance pays. The prescribing of medicine, bandages, etc., is desired. When they have been obtained they lie about until they are no longer fit to be used and must be thrown away—the insurance pays. Besides it is nice to get something in return for the premiums paid year in and year out. Excessive "overdoctoring" is the result, and the will for recovery—the best aid to health—is stifled. Pretenders and hypochondriacs are bred and the use of medicine becomes excessive. The advertising of certain remedies and cures created a medicine craze. A few years ago it was ascertained that 4 times as much money was used for doctors' fees and medicines for 35,000,000 persons in insurances as for 30,000,000 uninsured persons. This was stimulated, unthinkingly, by a desire to get sick money. An actual run on the sick-insurance allowance set in.

At first sight it seems improbable and paradoxical that a desire to obtain sick money that scarcely amounts to half the sum of wages should arise. It appears impossible that someone should, unless com-

pelled by illness, forfeit his wages to get an allowance of half the amount. Unfortunately life does not run a straight course between health, working ability, and working possibilities on one hand, and illness and disability on the other, nor do people's minds and actions.

In millions of cases, for example, when wages are being decreased, when work is scarce and work hours in consequence shortened, when there are fewer shifts, many holidays, work restrictions at certain seasons, outdoor work in frosty weather, 50 per cent of the wages is welcome. One objects to the work he is given, another does not feel like working, a third's time is taken up by some family matter for which he would have to take leave of absence and forfeit his pay. In such cases the sick insurance comes in handy. Besides this, there is also deceitful trickery. Fictitious contracts are made, doctors are induced to prescribe medicine and instead of the medicine toilet soap, scent, etc., are handed out by the pharmacies.

How can this possibly be done, some ask. Those who consult doctors are supposed to be ill. That is all very well if the doctors were always able to detect whether the statements of the patients were correct. Often a diagnosis is impossible. He who would like to prove this should go to 10 doctors, complain of headache, pain in the limbs, rheumatism. All 10 will start a treatment for headache or rheumatism, without discovering that nothing whatever is the matter with the patient.

Besides that, all doctors are glad to get new patients, for do they not mean their livelihood?

Medical science has become a cheap article, and doctors have given up conscientious treatment. The genuine patient is neglected, is not given the necessary care.

The greater the mass consultations, the lower are the doctors' fees. The amounts paid to panel doctors for each single case are deplorable. They are therefore compelled to resort to mass practice.

The sick insurance unrolls the entire problem of the medical man's existence. Mass demand compelled a limitation in the

use of medicines. Doctors must not prescribe what they consider good for the patient, they only being allowed to give remedies entered in a book of medical regulations for insurance purposes.

The insured workman becomes a second-class patient.

Wages without doing any work—that is what the unemployment insurance amounts to—create in course of time aversion to work, and destroy the instinct for thrift.

Two years after the unemployment insurance came into force a member declared on the floor of the Reichstag, "Those who draw money from the unemployment insurance consider us fools."

A high government official proved that experience had shown that one-third of those drawing unemployment money were devoid of any sense of what is social, and that in one town of his district 43 per cent refused to take any job offered them.

A network of deception has been spread. Farmers exchanged sons, registered them as workmen, so that they might get the insurance in winter for both families.

Fictitious work contracts were made, and with illicit work a system of deception was established. Unemployed workmen getting their allowance snatched work away from artisans and businessmen, etc., as, owing to the allowance, they were able to do the same work for less pay than honest workers who had to pay rates and taxes. Employers engaged workmen for half wages without registering them, and paid neither wage tax nor social insurance premiums, and the "unemployed workman" pocketed his "allowance" besides.

Since last year police raids are occasionally made in the big cities in search for illicit workmen in market halls, ports, at railway stations, etc. Thousands were caught, part of them were imprisoned.

Bluff is used for cheating the accident insurance. The casualty hospitals are called "bluffer universities."

All meeting with an accident try to represent the injury received worse than it is in order to obtain a higher allowance.

Certain methods of medical treatment were forbidden as they could not possibly



have the desired effect, the patient not having the wish to get well and forfeit the allowance.

The annuity, old-age, disability insurances have introduced a treatment for strengthening delicate patients, so that they need not start payments too soon.

In the first months of the year the applications for cures to the disability and employees' insurances pour in because many are anxious to take their summer holiday at the expense of the social insurance.

Matters soon made an extensive controlling system necessary. This ended in badgering all persons concerned.

Patients are visited in their homes by controlling officials who have to convince themselves that the patient is really ill and not doing any work. The patients are therefore allowed certain hours for going out by the doctors.

The sick insurance engages so-called confidential doctors who have to submit the patient to a final examination to see whether he is too ill to work. The results of such examinations are to a great extent startling. Here is one instance from among thousands: 2008 patients were ordered to appear for a final examination. Eight hundred sixteen of them at once declared their complete recovery; 289 were found to be well by the confidential doctor. So nearly 50 per cent were not ill at all.

The confidential doctor is, so to say, the medical policeman, who not only controls the patients but also his fellow doctors who are treating them.

The genuine patient is justly indignant to find that the existence of his illness is doubted, and that he who has always paid his premiums regularly and has a right to demand conscientious attendance is considered a cheat.

This system, together with the rest of the bureaucratic apparatus, has wedged itself between doctor and patient, completely destroying the patient's confidence in his physician, which greatly retards all recovery.

The sound idea of sick insurance has become thoroughly unsound, and the harm it does far outweighs its advantages.

In the unemployment insurance the controlling is done by making the workmen have a stamp put on their premium card once a week. How defective this method is is proved by the problem of "illicit work" and the police raids for illegal workers.

I once stated in a lecture that I knew the way of quickly diminishing the number of unemployed by 50 per cent: The state was to enlist half of the army of unemployed as auxiliary policemen to shadow the other half. This would be effective control provided that there were no secret understandings between the shadowers and the shadowed.

In any other way control is ridiculous. Those who know anything about medical certificates — those who know that in 99 cases out of 100 they contradict each other, and who also are aware that medical opinion forms the basis for the amount granted by the accident insurance as well as for the sickness and disability allowances can easily imagine what happens. They will not be surprised that a confidential doctor, whose task it is to keep the number of patients low, declares a patient recovered who nevertheless dies 2 days later.

The connection between the different risks in the social insurance system is of much more importance than would at first appear.

So the so-called occupational diseases (22 of them) are classed as accidents and passed on to the accident insurance.

Annuity insurance takes upon itself the medical treatment that really ought to fall to the sick insurance, whereas the sick insurance pays sick money for 26 weeks only. If the illness lasts longer, the disability insurance has to pay. On that account twilight zones and certain legal relations exist between the different branches of social insurance.

Were there only one insurance all responsibility would be loaded upon it. Until the unemployment insurance existed all who were dismissed from their jobs reported as patients to the sick insurance to obtain the sick insurance allowance.

We find that the extension of social insurance takes on an automatic tendency.

As long as there was no unemployment insurance, the sick insurance formed the best barometer for the state of business. When social insurance was first planned in Germany, accident insurance only was considered. Accidents not being of frequent occurrence, relatively few workmen meet with them. Then the discovery was made that old age, illness, and disability are much more frequent in a workman's life. These may and do overtake all. And, although Bismarck considered sick insurance a supposititious child, it was the first to be enacted.

When the world depression set in, the time seemed to be ripe for unemployment insurance.

When, during the last few years, the sinking birth rate pushed the problem of population into the foreground, the introduction of a mother-and-parenthood insurance was seriously discussed.

In the beginning nobody thought of insuring all workmen, merely needy ones. But soon everybody was "needy." Today, with members of families included, two-thirds of the nation are compelled to be insured.

A pension and support craze has been fostered that aims to make the entire population of the country state pensioners, relieving the individual thereby of the duty of caring for himself and of saving.

State pensions mean the death of all will to work and of all personal ambition.

Liberty and progress are possible only where the will to get on and to accumulate capital is not hindered, but furthered.

Social insurance has produced an unbelievable number of questions and problems hardly fathomed by the uninitiated, who face them quite helplessly.

Practice alone gained by 50 years of experience can answer these questions.

What is given here are merely a few outlines.

It is impossible even to mention all doubts in a short paper such as this, far less to answer them explicitly.

From what has been said, however, it can be seen clearly that social insurance is

no simple matter but an extremely intricate problem.

Therefore a few lines about laws and administration. Social insurance laws consist of 2700 paragraphs; 200 of these have lately been abolished. A great number of amendments, executive regulations, and alterations supplement this confusion of paragraphs. Even experts can make them out only in parts.

By extending and employing these paragraphs another tangle of commentaries has grown up around them. To an ordinary mortal this work is a book with 7 seals. Nor could it possibly have been simplified. As soon as such a law has been made, flaws are detected. These must again be rectified.

Ever since social insurance has existed, it has been subjected to reforms, one following the other in rapid succession.

Legislation is never done with social insurance. In keeping with its complexity, its expansion, and its millionfold ramifications in the life of the state and the people is the size of its organization and its administrative apparatus.

The number of officials required for the administration of social insurance varies in accordance with the amount of work being done. In total, and including the unemployed, 22,000,000 is the approximate number of insured persons.

There are about 6,500 sick insurance units. Unemployment insurance is administered from one national institute, which controls 13 state centers and 361 local centers.

The premiums for the unemployment insurance are collected by the sick insurance.

The accident insurance is administered by 66 trade organizations with 261 sections and 40 agricultural organizations with 526 sections.

The disability and old-age insurance is managed by 29 regional *Landesversicherungen* (offices of the provinces) and 6 special institutions.

One of these is the Reichs-institute for clerical employees and the Reichs-miners' insurance office with 16 district offices.

During the past few years the administration costs amounted to 400,000,000



marks annually. The costs cannot be called too high and cannot possibly be materially reduced.

However, the whole matter gets another aspect in view of the fact that these expenses are covered by workmen's premiums and are deducted year by year from the money intended for these men's support. In one worker's generation—say from the age of 20 to 60, or 40 years—it means the gigantic sum of 16,000,000,000 marks, which therefore is lost from the funds originally intended for sick, unemployment, and old-age insurances.

An army of about 70,000 officials is required to handle part of the wages of the workers under compulsory administration, for what else is social insurance?

For every 200 workmen one official is wanted in the above-mentioned administrative apparatus, which by no means comprises the entire machine. A great part of the administrative body is borrowed from other departments of government, as for instance, the Reichs-post office, as well as private business concerns. The post office sells the premium stamps and pays out annuities for the old-age insurance.

The private business concerns serve as collecting agencies. Their duty is to compute the premiums, to deduct them from the wages, and to convey them, together with the employer's share of the premiums, to the different offices of the social insurance. The wage departments therefore have become unduly enlarged, causing considerable extra cost which is hard to account for. Wage computation has gradually come to be a science in Germany.

But that is not all.

The extension of the administration, its multiformity, the complication of its legal regulations requires a special supervising and judicial staff. This work is accomplished by a Reich-insurance office, 3 regional insurances offices (these are now going to be closed down), 68 head offices, and 1,100 insurance offices. The costs for this army of officials are not included in the administrative expenses, but are borne by the state—also the administrative expenses of welfare relief, which has pro-

vided for the majority of the unemployed lately.

What gigantic sums of the workmen's capital are invested in the buildings in which the offices are housed can be calculated from the figures of the administrative apparatus. In many towns the buildings of the social insurance are the largest. In the period 1918 to 1932 particularly, so much money was invested in these palatial buildings that it resulted in a public scandal. The sick insurance palaces and the unemployment office buildings vied in size and splendor with the administrative palaces of great financiers and industrial concerns, or representative public buildings. In many places they even outshone them. While many workmen were living in dilapidated houses, their money was used for building huge, luxurious offices, which bore no sign of their purpose—the administration of the hard-earned capital of the working classes, put by for times of need.

To these must be added numerous other buildings: Laboratories, dental stations, medicine depots, and a considerable number of nursing homes. (The latter must not be confounded with the many hospitals, sufficient in number, clinics, etc., belonging to the state or universities, towns, religious organizations, cooperative organizations, etc.) The incalculable sums invested in these buildings and their luxuries can never be converted into allowances for the support of the needy.

Downright corruption adheres to the palaces. One scandal follows the other. Administrative officials, suppliers, architects are dragged into the mire. Common embezzlement, bribery, and other dishonorable acts on the part of officials are uncovered. In the excessive squandering of money, doctors, dentists, chemists, even employers become involved, the latter chiefly as wilful premium defrauders. They deduct the premiums from the workmen's wages without paying them to the insurances. To this came the unnecessary, dishonest exploitation of the insurances by pretenders, annuity chasers, illicit workers.

All this at the workman's expense, for the part of the premiums supposed to be

paid by the employer is in reality borne by the workman, either as consumer or as wage earner. The idea of burdening the employer with part of the premium is good and sound, but only as long as it is low. Today the employer's share is about 10 per cent of the wages and in consequence one of the most vital expense items of the economic system. As the employer's premium share is immediately connected with the wage, it is shifted over on the wage.

In Germany no one doubts any longer the fact that the employer's share of the premium is taken from the workman's wages. What the employer pays as his contribution to social insurance, he cannot pay the workmen in the form of wages.

Some years ago a well-known trade unionist had to admit that countries without social insurance have higher real wages than Germany (United States of America, Holland, Scandinavia), while another said: "High wages are the best social policy." In other words, social insurances handicap wage development. But not only this, they also intensify wage struggles.

Premiums started on a modest basis. The first were 1.5 per cent for the employee and 0.75 per cent for the employer. Today, the entire premium averages almost one-fifth of the amount of the wages and for miners it is nearly 30 per cent. The involved way in which the contributions are divided between employer and employee is omitted here, as an alteration is pending. It is expected that employer and employee in the future will bear equal shares, about 10 per cent each. Is it to be expected that an employer can afford to make an employee a present of 10 per cent in addition to his wages?

Certainly not. He keeps it in mind when fixing wage rates. Of the part of the premium an employer pays, the workman hears and sees nothing and still the amount is deducted from the gross amount of his wages. He can only reckon with the net wages which have been shortened by 20 per cent. Consequently the wages always appear too low. On the other hand, the social burdens have always been a handy ex-

cuse for the employers, even when wage demands were fully justified.

Must not this intensify wage struggles? Anyone can imagine the feelings of a workman who week by week, month by month, year by year, suffers a compulsory loss of one-fifth of his earnings. This loss of a considerable part of his wages really means expropriation.

The only part of the wages he might be able to save in order to build up a capital is taken from him, thus preventing him from having any resources of his own. Whether he wants to or not, he is doomed forever to remain a proletarian. It is social insurance therefore that makes needy people, in order to give them after they have become needy very inadequate support. Social insurance originally was established to help those in distress. Now there are poor of its creation.

The assertion that social insurance increases poverty, making it an everlasting doom from which there is no escaping, a fate accompanied by discontent and despair, is evident. It becomes clearer still at the sight of a few figures. I do not take one-fifth but the lowest average figures now valid in Germany—17 per cent of the wages. The result is the following yearly premium amount:

| <i>Weekly Wages</i>        | <i>Yearly Premium</i> |
|----------------------------|-----------------------|
| 20 RM. (\$ 5.00) . . . . . | 177 RM. (\$ 44.25)    |
| 25 RM. ( 6.25) . . . . .   | 221 RM. ( 55.25)      |
| 30 RM. ( 7.50) . . . . .   | 265 RM. ( 66.25)      |
| 40 RM. ( 10.00) . . . . .  | 354 RM. ( 88.50)      |
| 50 RM. ( 12.50) . . . . .  | 442 RM. ( 105.50)     |
| 60 RM. ( 15.00) . . . . .  | 530 RM. ( 132.50)     |
| 70 RM. ( 17.50) . . . . .  | 609 RM. ( 152.25)     |

Juvenile workers start paying at age 14 and 15 and go on paying until age 65, or until completely disabled.

Must the idea not arise that a workman should be allowed to keep his own savings and to invest them at interest, so that he may be able to keep himself and his family in the time of need out of his own means? This idea becomes more concrete when we consider in what way the sum, if properly invested, might increase at an



interest of 5 per cent, which still seems adequate in Germany.

Here are the results, supposing that payments are made continuously and nothing withdrawn between age 20 and age 65:

| <i>Weekly Wage</i>     | <i>Accumulation</i>   |
|------------------------|-----------------------|
| 20 RM. (\$ 5.00) . . . | 28,000 RM. (\$ 7,000) |
| 25 RM. ( 6.25) . . .   | 36,000 RM. ( 9,000)   |
| 30 RM. ( 7.50) . . .   | 43,000 RM. (10,750)   |
| 40 RM. (10.00) . . .   | 56,000 RM. (14,000)   |
| 50 RM. (12.50) . . .   | 77,000 RM. (19,250)   |
| 60 RM. (15.00) . . .   | 86,000 RM. (21,500)   |
| 70 RM. (17.50) . . .   | 100,000 RM. (25,000)  |

Even if a low rate of interest is used as the basis for calculation, the figures reached will be enormously high. For a calculation covering 45 years, neither very low nor very high interest must be taken, but a medium one. It must also be considered, however, that these figures refer to only one member of the family, that most workmen have a wife who before marriage worked and paid insurance premiums too, that many of them go on working when they are married and continue to pay premiums, and that the children at age 14 or 15 start paying also.

Only then is it possible to realize how the workman's family is pauperized by insurances.

Though such proofs are only of theoretical value, they clearly demonstrate that there is no necessity for men to remain proletarians forever, that they need not allow themselves to be forced into the strait jacket of collective mass insurance, and that on rare occasions only need they be obliged to resort to help from others.

The proposal has therefore been made to substitute for social insurance, which has so many unavoidable drawbacks, a system of social-savings accounts, each workman banking for his own account. Then, in case of illness, unemployment, etc., he would be able to fall back upon his own resources first of all.

In the same manner as the workman is now compelled to pay premiums for social insurances, he should be obliged by law to make regular deposits into his savings account.

This would be the duty of the state, as in cases of distress of great dimensions, providing for the poor would fall to its share. Under a social insurance system, the number of people who must be supported when they have no earnings is constantly increasing, whereas the number would diminish if people were forced to save.

A state that has to take the responsibility of providing for the majority of its subjects, as is the case with social insurance, is bound to collapse when the time of need comes.

Every single individual should be made to see that he has the duty to provide for himself.

Independence and a sense of responsibility of the citizens are the only means to save a state from too great a social burden, as was the case in the United States before the great crisis came. There the inexorable "I must" drove everyone on, for no social insurance existed to take the trouble from the people in a time of reverses.

But every nation has a great number of subjects for which a compulsion, it being only a moral one, does not suffice. They have not enough will power of their own to put by sufficient of their earnings for a rainy day. Besides this there are others who rely on their luck and, trusting in everlasting prosperity, live carefree lives, forgetful of times of distress.

These carefree, weak characters are the ones that require state compulsion. For them laws are a necessity—also in consideration of the others who would be burdened with the care of them. For the strong-minded the compulsion is merely the fulfillment of what they themselves consider a natural duty. Therefore it does not mean compulsion for them. A duty to save, prescribed by the state, is the best solution of this problem. All this can be carried out with the means which are now wasted for social insurance.

Instead of an insurance card the workman would have a bankbook, the best way of giving him a sense of responsibility.

For the carrying out of this no new in-

stitutions would be required. The existing banks and credit institutions, together with the postal saving banks or similar institutions, would suffice.

The administration costs would not be drawn from the deposits, as in the social insurance from the premiums, but would support themselves the same as in all banks from their own profits. On the contrary, the savers would be paid a normal percentage of interest besides.

Here the state would have only suitable control and regulation for the investment of the capital as, for instance, it has in German savings banks.

These savings must, of course, be used only for the social purposes for which they are intended and must be blocked until a certain amount has been accumulated. These restrictions are very slight indeed compared with the entire loss of disposal rights under a social insurance system, for here the property rights as well as the rights of inheritance remain, which is not the case with any of the social insurances.

All waste would disappear, all control might be abolished when men no longer ate out of a large common dish, but had to pay for everything out of their own pockets.

The administration of social saving banks can be made quite easy and simple.

The calculation of the wages would no longer be complicated, and the amount of the employer's premiums would no longer be camouflaged and deducted from the workmen's wages. The workers would get the full amount of their wages, but part of them in form of a bank credit. Details it is not the place to discuss here, but that this method is easier to carry out than that of the involved social insurance is evident. The laws required would not need more than one-tenth of the paragraphs of social insurance.

Those few who might fail to be able to support themselves under a savings account system (it should not exceed 5 per cent of the entire number) must, of course, be taken care of by society. That they could be cared for better than when all are obliged to rely on public help stands to reason.

Existing institutions for the aid of the

poor, trade unions, voluntary welfare organizations such as the Salvation Army, the Red Cross, and other charitable institutions, etc., would be quite sufficient. This work might also be regulated and supervised by the state. Flexible support, which depends on the extent of the distress and the requirements in each individual case, is more social than the so-called help of social insurance, which adheres rigidly to regulations and paragraphs.

Social insurance is distinctly a system that eats up and wastes capital. If it were based on adequate capital and reserves, the premiums would be so high that there would not be enough money in the world to pay them.

It has been proved that state social insurance saps the supply of capital required by private life insurance. A workman with savings of his own can insure his future by insuring his life.

The saving system is not only a systematic accumulation of capital, but it distributes capital in the broadest way all over the nation.

An economic crisis is largely aggravated by the fact that the middle classes suffer most, which means that the consuming power of a broad section of society is impaired.

Under the savings system the larger part of the working population can be raised to the level of middle class prosperity within a generation. But even in the very beginning, when the broad masses notice the growth of their savings accounts, their minds will be imbued with the sense of property ownership and capital formation. Thereby an objective will be set which they will try to reach and which will stimulate their ambition.

This forms the safest bulwark against the encroachment of communistic-socialistic ideas.

With a social insurance for wage earners class distinctions are legally sanctioned and more and more aggravated.

Up to a certain income and fortune limit, all classes could be included in the savings system without there being any danger of a general state pension complex.



One might easily be led to think that in times of great distress, such as the present crisis, the introduction of a savings system would be impossible. If that were so, the establishment of social insurance must be all the more impossible. When millions of unemployed have neither capital nor an income to live on, when hundreds of thousands of members of the middle classes are impoverished, the first endeavor must be to prevent more people from falling to the care of the state, to stop poverty increasing, and to make up for losses sustained with utmost speed.

If unemployment insurance is not introduced until millions are already out of work, the unemployed cannot be taken care of by the insurance, because, under any insurance system, a claim for an allowance must be preceded by payment of adequate premiums over a stipulated period (6 months in Germany). Unemployment insurance is, therefore, only for those who still have work, but may be unemployed later on.

For the employed there is always the possibility of making deposits against a possible need and thus erecting a bulwark against further demands on public aid. The introduction of social insurance expects exactly the same from them.

Social insurance has taught one good lesson: Every one must use part of his earnings to protect his future.

Times of unemployment can be bridged over from earnings and from them only.

Why, people will ask, does Germany, after having experienced the great drawbacks of social insurance, not adopt this system—a system that seems so reasonable and so full of appeal to human nature?

If Germany had no social-insurance system, but still had her five years of experience in it, she certainly would not adopt social insurance today.

But it would now mean in Germany transforming one system into another. And this is where the difficulty lies.

When a nation has been swayed by a certain law for half a century, be it right or wrong, this has entered into its mentality and it would be a difficult task to train a nation to another way of thinking.

Added to this a colossal institution such as the German social insurance is bound up in the state's national and economic life, and, besides, an army of people—directly or indirectly—lives on it.

And what is still more vital is that millions of old people, disabled persons, widows, orphans, and cripples depend for their very existence on the insurances, and that many millions through contribution over decades have gained rights that must be respected at any cost.

Although ways and means for a change might be found, the winding up of the present system would require a very long time—for the annuity insurance it would take years. This is clearly to be seen when we learn that for the covering of existing claims in the annuity insurance, 16,000,000,000 marks are wanting. Payment, of course, does not fall due today or tomorrow. It extends over a long space of time. But still the means have to be found. From what has been said here it may be seen that social insurance, once established, is difficult to abolish. This ought to be borne in mind and be a warning to take particular care and consider it well.

For a state not burdened with the obligations of social insurance the introduction of the saving system is easy and without any risk, as the state has not to take upon itself the legal obligation to provide for those unable to do so for themselves.

For the new German government the most vital thing was to prop and support the gigantic structure, to prevent its collapse and thereby to safeguard the existence of millions. The Augean stable of corruption has been cleaned and reforms introduced. What the result will be, how matters will further develop, remains to be seen.

One thing, however, is certain: There is only one state in the world that fights proletarianism among the working classes energetically and purposefully with all ideal means, and in principle shares the opinions expressed here—that is Germany. In what way the ideal and material raising of the proletariat will develop depends on the economic development of the next few decades.

# THE JOURNAL

OF THE

TENNESSEE STATE MEDICAL ASSOCIATION

Devoted to the Interests of the Medical Profession of Tennessee  
Office of Publication, 510 Doctors Bldg., Nashville, Tenn.

Acceptance for mailing at special rate of postage provided for  
in Section 1103, Act of October 3, 1917.  
authorized July 15, 1932.

H. H. SHOULDERS, M.D., Editor and Secretary

APRIL, 1935

## EDITORIAL

### WELFARE

Doctors, especially those engaged in giving care to sick people, are interested in human welfare.

We are interested in the subject, not as a theoretical abstraction. We are interested in it as an actuality. Contributions to human welfare constitute our daily task. It occupies our thoughts. It is the subject with which we are acquainted by reason of intimate daily contact.

We are acquainted also with certain ethical principles, the preservation of which is an essential part of the highest human welfare.

Those principles are ethical principles. They might just as well be called *principles of right*. In our opinion, these cannot be destroyed or ignored without injury to *human welfare*.

These principles are so interlinked with the principles of democratic government that one can hardly discuss one without mentioning the other. It would not be necessary to discuss them together, but for the fact that a large number of "*social uplifters*" have been born during the depression, and they not only carry on a campaign of communistic propaganda, but in addition charge the medical profession with being antagonistic to human welfare; antagonistic to progress; and, worst of all, we are charged with being *conservatives*.

It can be asserted with safety that we doctors have contributed more to human welfare during the depression, without charge, and without hope of reward, than all the salaried sociologists in existence.

We doctors treat charity as charity. We

do not allow the considerations of charity to destroy our moorings or our attachments to the fundamental principles of democracy which have made our country what it is, or was.

Recently a speaker was quoted as saying, in effect, that all the socialistic legislation now proposed could be enacted into law and we would still be thirty years behind some European countries in the matter of so-called social legislation.

Just here it should be said that it has been necessary for this country to erect barriers to prevent immigration of people into this country from the very European countries which have such advanced social legislation.

We doctors have not lost an appreciation of the value of the human soul and especially the freedom of that soul.

According to figures purporting to be accurate, 80 per cent of our population of one hundred twenty-five million people have demonstrated their ability to take care of themselves in a democracy. About 20 per cent have for one reason or another found themselves unable to take care of themselves.

The medical profession is in hearty sympathy with any sensible effort designed to aid in any needful way those who are eligible to charity. We are, however, opposed to the sacrifice of the principles which have made our country and our profession great, and the setting up of powerful bureaucracy with its blighting influence in order to accomplish an alleged improvement in the welfare of a minority, many of whom are not self-supporting in good times as well as bad.

Some generations preceding us have cherished and carried out the laudable purpose of making the world better for their children than the world in which they lived. They sought, they sacrificed to achieve and to guarantee freedom. They promoted, insofar as their means would permit, public education not as an obligation of the state to the individual, but as a means of preparing the individual to take care of himself in a democracy. It was done in order that democracy itself might live.



If we are to lose our democracy, if doctors and patients are to be regimented under the direction and domination of a bureaucracy, then our education would be largely useless because there would be little freedom of intellect, much less freedom of action.

In the long run, it may matter little whether one knows geometry or doesn't. It may matter little whether one knows Latin or not, but, in our opinion, it matters tremendously whether one is bound by the chains of a greedy bureaucracy in which there would be little freedom of intellect and action.

Therefore, we would preserve the principles of democracy and freedom *in the name of the highest human welfare.*

We would never entertain an ambition to compete with any European country in communistic legislation in the *name of welfare.*

If we cannot correct abuses and prevent injustices through the governmental mechanism of our democracy, how in the name of heaven can we hope to correct the abuses, the injustices, and the tyranny of bureaucrats once such a system of government becomes entrenched? The bureaucrats would then control every governmental agency we now know that fails to bow to their supremacy.

## WOMAN'S AUXILIARY

*President*-----Mrs. Willis Campbell  
Memphis  
*President-Elect*-----Mrs. R. G. Reaves  
Knoxville  
*Press and Publicity*---Mrs. W. W. Wilkerson, Jr.  
Nashville

### PROGRAM FOR STATE CONVENTION, NASHVILLE, APRIL 9-11

Tuesday, April 9, Registration at Hermitage Hotel, Headquarters.

2:30 P.M.—Pre-Convention Board Meeting, Mrs. Willis Campbell presiding.

7:00 P.M. — Executive Board Dinner, Mrs. Campbell hostess, at Centennial Club.

9:00 P.M.—Musical and Reception at Centennial Club.

Wednesday, April 10.

10:00 A.M.—Annual Session, Mrs. Willis Campbell presiding. Dr. H. S. Shoulders, speaker for the meeting.

1:00 P.M.—President's Day Luncheon at Belle Meade Country Club. Drive to "Dauntless Hills."

7:00 P.M.—Annual Banquet, Hermitage Hotel.

8:30 P.M.—"Medical Microbe" party.

Thursday, April 11.

10:00 A.M.—Post-Executive Board Meeting, Mrs. R. G. Reaves, presiding.

### REPORTS OF LOCAL AUXILIARIES

*Knox County, Mrs. H. E. Christenberry,  
President*

The auxiliary met on March 7, at the home of Dr. and Mrs. C. F. Clayton. Dr. E. B. Elder, Superintendent of the Knoxville General Hospital, in speaking to the auxiliary, praised the group for its work in the prenatal clinic of the hospital. Another feature of the program was a group of songs by Mrs. Jesse Hill. Delegates elected to the state convention were Mrs. J. B. Neal and Mrs. Andrew Smith. Alternates elected were Mrs. G. W. Stone and Mrs. R. B. Lancaster. Mrs. Kimbrough of Madisonville was named a director. The medical society invited the auxiliary to a Ladies' Night on the following Tuesday.

*Davidson County, Mrs. B. F. Byrd,  
President*

At the auxiliary meeting on March 1, Dr. G. K. Carpenter gave an exceedingly interesting and academically clear talk on "Infantile Paralysis," telling of its pathology of the spinal cord and the effects on various parts of the body. Mrs. W. O. Floyd, general chairman for the convention, made a report. Delegates elected to the convention were:

Mrs. D. W. Smith, Mrs. Fort Bridges, Mrs. J. P. Gilbert.

Alternates: Mrs. J. D. Lester, Mrs. Hearn Bradley, Mrs. Fowler Hollabaugh, Mrs. Paul Purks, Mrs. R. L. Dozier.

Delegates to the state convention from Shelby County Auxiliary were: Mrs. John Shea, Mrs. Nash, Mrs. W. H. Gragg, Mrs. Bodley.

# EXPLOITATION of the MEDICAL PROFESSION

EVERYWHERE it is rampant — newspapers, magazines, billboards, radio. "Your doctor will tell you that . . ." "Medical science has found that . . ." "The greatest specialists in Timbuctoo say that . . ." And the rest of the story is, of course, "Use our pills or our vitamins three times a day; ask your doctor."

♦ ♦ ♦

You are forced to compete with those who offer your patients free advice regarding medical treatment. You deliver Mrs. Blank's baby today, and tomorrow she will receive by mail samples of baby foods with complete directions how to use them. Indeed, some physician representing a commercial organization and knowing that the case is in your hands may address a personal letter to your patient offering his services free.

♦ ♦ ♦

It has been said that ten more years of the present trend of interference in medical practice will do away with the need for private practice of infant feeding and other branches of medicine.

♦ ♦ ♦

Mead Johnson & Company have always believed that the feeding and care of babies and growing children is an individual problem that can best be controlled by the individual physician. For over twenty years and in dozens of ethical ways we have given practical effect to this creed. We hold the interest of the medical profession higher than our own, for we too, no doubt, could sell more of our products were we to advertise them directly to the public.

♦ ♦ ♦

So long as medical men tacitly encourage the present trend, so long will serious inroads continue to be made into private medical practice. When more physicians specify MEAD'S Products\* when indicated, more babies will be fed by physicians because Mead Johnson & Company earnestly cooperate with the medical profession along strictly ethical lines and never exploit the medical profession.



"We Are Keeping the Faith"

(powder and tablets); Mead's Powdered Lactic Acid Milk Nos. 1 and 2; Mead's Powdered Whole Milk; Alacta; Mead's Powdered Protein Milk; Casec; Recolac; Sobee; Cemac; Mead's Halibut Liver Oil; Mead's Viosterol in Halibut Liver Oil (liquid and capsules).



Dextri-Maltose Nos. 1, 2, and 3; Dextri-Maltose with Vitamin B; Mead's Viosterol in Oil; Mead's Cod Liver Oil with Viosterol; Mead's Standardized Cod Liver Oil; Pabulum; Mead's Cereal; Mead's Brewers Yeast



## D E A T H S

Dr. Robert M. Kendrick, Selmer; St. Louis College of Physicians and Surgeons, 1897; aged 64; died February 20, of pneumonia.

Dr. James R. Bone, Lebanon; University of Nashville Medical School, Nashville, 1908; aged 58; died March 28, of pneumonia.

## NEWS NOTES AND COMMENTS

### A CORRECTION

Knoxville, Tennessee  
March 19, 1935

Dr. H. H. Shoulders,  
Nashville, Tennessee.

*Dear Doctor:*

In the current issue of the TENNESSEE JOURNAL the first discussion on the paper of Dr. Zerfoss is accredited to Dr. Leach.

Calling my limping memory to my aid, as well as I can remember, although that memory has been dimmed somewhat by approaching senility, I wrote that discussion and read it following Dr. Zerfoss' paper last spring in Chattanooga, which discussion occurred at the time of day when all of my mental faculties were very clear. However, it seems from the JOURNAL that this child was put out for adoption, and no doubt Dr. Leach will probably resent its being left on his doorstep.

Yours truly,  
(Signed) DR. R. H. NEWMAN.

## MEDICAL SOCIETIES

### *Blount County:*

April 18—"Fractures of Clavicle," by Dr. W. O. Brickell. Discussion to be opened by Dr. J. W. Tipton.

April 25—"Diagnosis and Treatment of Common Skin Conditions," by Dr. E. L. Ellis. Discussion to be opened by Dr. O. F. Agee.

May 2—"Risk of Carcinoma of Cervix Following Supravaginal Amputation," by Dr. H. A. Calloway. Discussion to be opened by Dr. G. D. Lequire.

"Treatment of Influenza," by Dr. J. W. Norton. Discussion to be opened by Dr. J. E. Hall.

May 9—"Preventative Pediatrics," by Dr. L. C. Olin. Discussion to be opened by Dr. E. L. Ellis.

### *Davidson County:*

March 19—"Public Medical Relief Service in Sweden," by Dr. Bunnar Nystrom, Stockholm, Sweden.

March 26—"Some Symptoms and Their Meaning (Referring to: Hypoglycemia, Subarachnoid Hemorrhage, Diverticulitis and Pernicious Anemia)," by Dr. W. H. Witt. Discussion opened by Drs. David Hailey and W. R. Cate.

April 2—"Thyroiditis," by Dr. N. S. Shofner. Discussion opened by Drs. W. H. Witt and L. W. Edwards.

Case report: "Sympathetic Block for Relaxation of Cardiospasm," by Dr. T. D. McKinney and Dr. Jack Witherspoon.

### *Hamilton County:*

The following papers are to be read during the month:

April 18—Symposium on Gastric Ulcer, by Dr. H. Quigg Fletcher, Dr. W. E. Bryan.

April 25—Symposium on Tuberculosis at Pine Breeze Sanatorium.

1. "Bacteriology of Tuberculosis," by Dr. T. C. Crowell.

2. "Pathology and Physiology of Tuberculosis," by Dr. W. D. Anderson.

3. "Clinical Picture of Pulmonary Tuberculosis," by Dr. J. L. Hamilton.

4. "X-ray Findings in Tuberculosis," by Dr. F. B. Bogart.

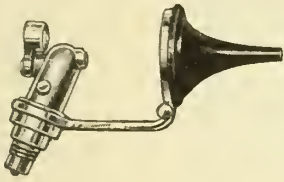
5. "Anesthesia in Pulmonary Tuberculosis," by Dr. E. A. Gilbert.

6. "Collapse Therapy in Pulmonary Tuberculosis," by Dr. J. A. Steward.

7. "Orthopedic Treatment in Tuberculosis," by Dr. R. C. Robertson.

May 2—"Brain Complications Following Otitis Media," by Dr. Stewart Lawwill.

## If It's a "National" You Know It's the Best!

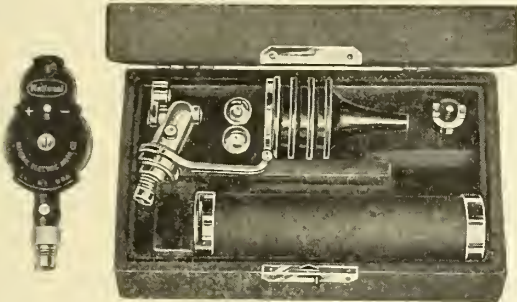


**OTOSCOPE EMPLOYS STANDARD FLASHLIGHT BULB and "Neicomold" SPECULA**  
POWERFUL collecting lens delivers light of unsurpassed penetration—UNOBSTRUCTED vision—ABUNDANT operative space.



### DOUBLE-DISC "Neicomold" OPHTHALMOSCOPE

UNUSUAL RANGE—96 dioptic values, plus .5 to 70, minus .5 to 45—COLOR FILTERS, clear light, daylight, red free, pin point—PRISM ILLUMINATION, no shadows, light glare or corneal reflex—"Neicomold" CASING, no plating or oxidizing to wear off, light in weight.

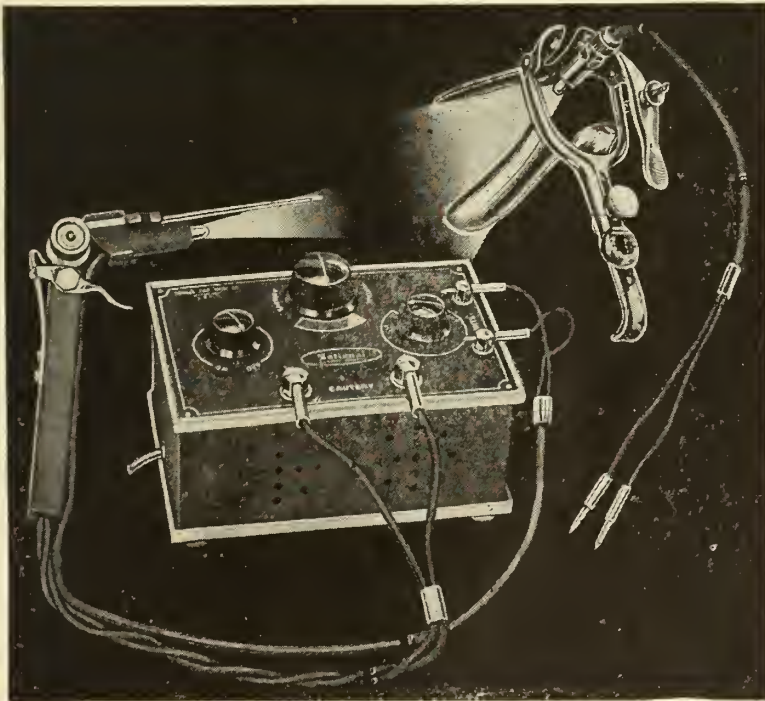


### National OTOSCOPE and SINGLE-DISC OPHTHALMOSCOPE SET—N 2534 . . . \$40.50

INCLUDES: Otoscope with 4" "Neicomold" Specula, Single-Disc "Neicomold" Ophthalmoscope, Medium Size Battery Handle and Spare Bulbs in Plush-lined Case.

### National "TWIN-CONTROL" CAUTERY SET with "GYN-A-LITE" and ILLUMINATED CAUTERY HANDLE—N 50 . . . \$37.50

*A Complete Set for All Vaginal and Cervical Examinations and Treatment*



INCLUDES: "Twin-Control" Heavy Duty Transformer, Illuminated (patented) "Trigger" Cautery Handle (with special "Searchlight" bulb and 7½-foot boileable light cord), choice of 3 Cautery Tips and "Gyn-A-Lite" Clip which fastens to any standard vaginal speculum. (No speculum included.)

INTENSE LIGHT—Cautery Illuminator is insulated and light intensity is separately controlled, regardless of the size cautery tip in operation.

**National Electric Instrument Co. LONG ISLAND CITY, N. Y.**



"Irradiation and Cautery Excision in the Treatment of the Malignancies," by Dr. Edward T. Newell.

May 9—"Whooping Cough," by Dr. J. B. Phillips.

"The Ruptured Appendix," by Dr. A. M. Patterson.

*Hardin, Lawrence, Lewis, Perry and Wayne Counties:*

The Five-County Medical Society met in Hohenwald on March 26. The following papers were read:

"Treatment of Compound Injuries," by Dr. J. H. Tilley, Lawrenceburg. Discussion opened by Dr. C. V. Stevenson.

"Eye Diseases in Relation to the General Practitioner," by Dr. Henry C. Smith, Nashville. Discussion opened by Dr. J. W. Danley.

"A Common Gynecological Problem," by Dr. Daugh W. Smith, Nashville. Discussion opened by Dr. Paul Wylie.

Case Reports.

*Henry, Carroll, Weakley, and Benton Counties:*

On March 12 the doctors of these counties met at McKenzie to hear a program rendered by Dr. R. W. Brandon, Martin; Dr. George McSwain, Paris, and Dr. I. H. Jones, of Paris.

The attendance was good and all present joined in discussion of the papers presented.

*Knox County:*

March 5 — "The Abdominal Pain of Throat Infections and Appendicitis in Children," by Dr. J. G. Eblen. Discussion opened by Drs. Oliver W. Hill, Joe T. Smith, W. R. Cross, and Beulah Kittrell.

March 19—Address by Dr. Henry Sinskey, of Baltimore.

## OTHER MEDICAL SOCIETIES

VANDERBILT UNIVERSITY MEDICAL SOCIETY

March 1, 1935

1. Case Reports:

(a) Two Cases of Traumatic Aneurysm of the Neck—Dr. Barney Brooks.

Case 1. E. M., white, female, age 15. Four years previous to admission, patient received gunshot wound. The bullet entered the right cheek and emerged in the posterior midline of the neck. Examination showed presence of arteriovenous fistula in the right neck with paralysis of the cervical sympathetic and the ninth, tenth, eleventh, and twelfth cranial nerves. Fistula first believed to exist between internal carotid artery and jugular vein. Exploration anterior sternocleidomastoid muscle showed dilated internal carotid artery with no fistula. Subsequent exploration in posterior aspect of the neck. Vertebral artery was ligated at the level of the first transverse process and again at the level of the second transverse process. Fistulous opening apparently lay between these two points. Since operation, all evidences of fistula have disappeared.

Case II. W. C. M., white, male, age 56. Eight years before admission, received gunshot wound in the left neck. Examination showed partial motor aphasia, paralysis of the twelfth cranial nerve, large pulsating tumor below angle of the left jaw. Exploration of the left carotid vessels showed an aneurysmal sac communicating with the jugular vein and carotid artery just proximal to its bifurcation. Aneurysmal sac excised and defect in the carotid artery closed with suture.

(b) Unusual Heart Failure in a Two and One-Half Years Old Child—Dr. J. C. Peterson.

The patient is a two and a half year old white male presented as a case of cardiac failure resulting from asthma and anemia, secondary to improper feeding. The patient gave a history of having had asthma throughout the winter for two years. He had been fed almost exclusively on milk and showed a marked secondary anemia. Intradermal tests showed him to be sensitive to house dust and milk. Removal of the offending allergens resulted in the improvement of his asthma and this with transfusions of blood for his anemia resulted in return of normal cardiac function.

Case discussed by Drs. Dodd, Harrison, Burwell, Morgan, and Meleney.

(Continued on page 169)



## BACTERIOLOGICAL TESTS

*prove sterility of Scanlan sutures*

Following high heat sterilization, the entire lot of sterilized catgut is moved into 14-day quarantine to await the bacteriological report. Samples from each sterilized lot are subjected to complete bacteriological tests under both aerobic and anaerobic conditions. Perfect safety in the use of Scanlan sutures is thus insured.

*Secure samples at the meeting of the  
Tennessee State Medical Association*

**SCANLAN LABORATORIES, INC., Madison, Wisconsin**  
*Associated with SCANLAN-MORRIS COMPANY*



# LIST OF OFFICERS OF THE TENNESSEE STATE MEDICAL ASSOCIATION

President—Dr. J. O. Manier, Nashville.  
 Vice President for East Tennessee—Dr. W. B. Campbell, Cleveland.  
 Vice President for Middle Tennessee—Dr. J. K. Blackburn, Pulaski.  
 Vice President for West Tennessee—Dr. G. H. Berryhill, Jackson.  
 Secretary—Editor—Dr. H. H. Shoulders.  
 Assistant Secretary—Editor—Dr. W. M. Hardy.

## TRUSTEES

Chairman and Treasurer—Dr. C. M. Hamilton, Doctors Building, Nashville.  
 Dr. Ralph Monger, Medical Arts Building, Knoxville.  
 Dr. W. L. Williamson, 915 Madison Avenue, Memphis.  
 Dr. H. B. Everett, 2541 Broad Street, Memphis.  
 Dr. E. R. Zemp, Walnut Street, Knoxville.

## COUNCILORS

First District—Dr. L. E. Dyer, Greeneville.  
 Second District—Dr. S. R. Miller, Knoxville.

Third District—Dr. J. H. Revington, Chattanooga.  
 Fourth District—Dr. J. T. Moore, Algood.  
 Fifth District—Dr. John W. Sutton, Petersburg.  
 Sixth District—Dr. L. W. Edwards, Nashville.  
 Seventh District—Dr. C. D. Walton, Mt. Pleasant.  
 Eighth District—Dr. J. R. Thompson, Jackson.  
 Ninth District—Dr. E. H. Baird, Dyersburg.  
 Tenth District—Dr. W. B. Burns, Memphis.

Speaker of the House of Delegates—Dr. E. R. Zemp, Knoxville.

Delegates to the American Medical Association—

Dr. E. G. Wood, Knoxville; East Tennessee.  
 Dr. H. H. Shoulders, Nashville; Middle Tennessee.  
 Dr. H. B. Everett, Memphis; West Tennessee.

Alternates—

Dr. E. T. Newell, Chattanooga; East Tennessee.  
 Dr. M. M. Cullom, Nashville; Middle Tennessee.  
 Dr. E. C. Ellett, Memphis; West Tennessee.

## OFFICERS OF COUNTY MEDICAL SOCIETIES FOR THE YEAR 1935

| COUNTY                                   | PRESIDENT                             | VICE PRESIDENT                        | SECRETARY-TREASURER              |
|------------------------------------------|---------------------------------------|---------------------------------------|----------------------------------|
| Anderson                                 | Thomas Jennings, Clinton              | Edward Dickson, Coal Creek            | J. S. Hall, Clinton              |
| Bedford                                  | W. T. Sharpe, Farmington              | Alfred Farrar, Shelbyville            | W. H. Avery, Shelbyville         |
| Blount                                   | C. C. Vinsant, Maryville              | L. C. Olin, Maryville                 | H. A. Calloway, Maryville        |
| Bradley                                  | Vance H. Bell, Cleveland              | D. N. Arnold, Cleveland               | Wm. A. Garrott, Cleveland        |
| Campbell                                 | A. L. Lawson, Elk Valley              | G. M. Rogers, LaFollette              | F. A. McClintock, Newcomb        |
| Carroll                                  |                                       |                                       | J. H. Williams, McKenzie         |
| Carter                                   | E. T. Pearson, Elizabethton           | J. B. Shoun, Elizabethton             | E. L. Caudell, Elizabethton      |
| Chester, Henderson,<br>Decatur           | C. H. Johnston, Lexington             |                                       | L. C. Smith, Henderson           |
| Cocke                                    | J. A. P. Shields, Hartford            |                                       | J. E. Hampton, Newport           |
| Davidson                                 | W. G. Kennon, Nashville               | H. S. Shoulders, Nashville            | J. P. Gilbert, Nashville         |
| Dickson                                  | L. F. Loggins, Charlotte              |                                       | R. P. Beasley, Dickson           |
| Dyer, Lake, and Crockett                 | E. H. Baird, Dyersburg                | P. E. Miller, Tigrett (Dyer)          | C. L. Denton, Dyersburg          |
|                                          |                                       | R. C. Newkirk, Tiptonville (Lake)     |                                  |
|                                          |                                       | J. O. McKinney, Friendship (Crockett) |                                  |
| Fayette and Hardeman                     | John Morris, Somerville               | L. D. McAuley, Oakland                | A. Richards, Bolivar             |
| Franklin                                 | W. F. Smith, Decherd                  | A. P. Smith, Winchester               | John P. Grisard, Winchester      |
| Gibson                                   | P. D. Jones, Milan                    | L. H. Montgomery, Trenton             | F. L. Roberts, Trenton           |
| Giles                                    | Joe B. Wright, Lynnville              | R. E. Warren, Pulaski                 | T. F. Booth, Pulaski             |
| Greene                                   | L. E. Dyer, Greeneville               | M. A. Blanton, Mosheim                | C. P. Fox, Jr., Greeneville      |
| Hamblen                                  | P. L. Henderson, Morristown           | P. L. Brock, Morristown               | J. F. Campbell, Morristown       |
| Hamilton                                 | James L. Bibb, Chattanooga            | D. N. Williams, Chattanooga           | W. J. Sheridan, Chattanooga      |
| Hardin, Lawrence, Lewis,<br>Perry, Wayne | G. N. Springer, Hohenwald             |                                       | C. C. Stockard, Lawrenceburg     |
| Haywood                                  | W. D. Poston, Brownsville             | A. H. Sorrelle, Brownsville           | Roy M. Lanier, Brownsville       |
| Henry                                    | A. F. Paschall, Puryear               | Elroy Scruggs, Paris                  | R. Graham Fish, Paris            |
| Hickman                                  | L. F. Pritchard, Only                 |                                       | W. K. Edwards, Centerville       |
| Humphreys                                |                                       |                                       | W. W. Slayden, Waverly           |
| Jackson                                  | J. D. Quarles, Whitleyville           | R. C. Gaw, Gainesboro                 | F. B. Clark, Gainesboro          |
| Knox                                     | Eugene Abercrombie, Knoxville         | W. F. Christenberry, Knoxville        | Jesse C. Hill, Knoxville         |
| Lauderdale                               | J. L. Dunnivant, Ripley               | T. E. Miller, Ripley                  | J. R. Lewis, Ripley              |
| Macon                                    | D. D. Howser, Lafayette               |                                       | J. Y. Freeman, Lafayette         |
| Madison                                  |                                       |                                       | S. M. Herron, Jackson            |
| Maury                                    | E. M. Ragsdale, Columbia              | D. B. Andrews, Columbia               | C. D. Walton, Mt. Pleasant       |
| McMinn                                   | R. W. Epperson, Athens                | S. B. McClary, Sr., Etowah            | L. A. Brendle, Englewood         |
| McNairy                                  | John R. Smith, Selmer                 | G. B. Curry, Selmer                   | H. C. Sanders, Selmer            |
| Monroe                                   | T. M. Roberts, Sweetwater             |                                       | W. J. Cameron, Sweetwater        |
| Montgomery                               |                                       |                                       | Paul E. Wilson, Clarksville      |
| Overton                                  |                                       |                                       | A. B. Qualls, Livingston         |
| Polk                                     | H. P. Hyde, Copperhill                | W. Y. Gilliam, Copperhill             | F. O. Geisler, Isabella          |
| Putnam                                   | Z. L. Shipley, Cookeville             | J. Fred Terry, Cookeville             | Thurman Shipley, Cookeville      |
| Roane                                    | L. A. Killefer, Harriman              | R. F. Register, Rockwood              | W. W. Hill, Harriman             |
| Robertson                                | W. Foster Fyke, Springfield           |                                       | W. S. Rude, Ridgeway             |
| Rutherford                               | J. D. Hall, Readyville                |                                       | J. A. Scott, Murfreesboro        |
| Scott                                    |                                       |                                       | D. M. Woodward, Winona           |
| Sevier                                   | O. H. Yarberry, Sevierville           |                                       | C. P. Wilson, Sevierville        |
| Shelby                                   | Jas. B. Stanford, Memphis             | R. G. Henderson, Memphis              | A. F. Cooper, Memphis, Secretary |
|                                          | R. F. Mason, Memphis, President-Elect |                                       | J. J. Hobson, Memphis, Treasurer |
| Smith                                    | R. E. Key, Monoville                  | Rhea E. Garrett, Dixon Springs        | Thayer S. Wilson, Gordonsville   |
| Sullivan and Johnson                     | W. R. Rogers, Bristol, Va.            | L. C. Cox, Kingsport (Sullivan)       | Arthur Hooks, Bristol, Tenn.     |
|                                          |                                       | J. C. Hutchenson, Crandall (Johnson)  |                                  |
| Sumner                                   | J. J. Gwin, Hartsville                | R. N. Buchanan, Hendersonville        | Homer Reese, Gallatin            |
| Tipton                                   | A. J. Butler, Covington               | J. J. Fleming, Atoka                  | H. C. Currie, Covington          |
| Warren                                   |                                       |                                       | John S. Harris, McMinnville      |
| Washington                               | J. W. Wallace, Johnson City           | E. T. Brading, Johnson City           | Carroll H. Long, Johnson City    |
| Weakley                                  | R. W. Brandon, Martin                 | H. G. Edmonson, Martin                | P. W. Wilson, Dresden            |
| White                                    | S. E. Gaines, Sparta                  | Vernon Hutton, Ravenscroft            | A. F. Richards, Sparta           |
| Williamson                               | T. C. Rice, Franklin                  | R. H. Hutchison, Franklin             | K. S. Howlett, Sr., Franklin     |
| Wilson                                   | J. L. Ames, Lebanon                   | C. C. Young, Alexandria               | J. R. Bone, Lebanon              |

## STANDING COMMITTEES

## COMMITTEE ON SCIENTIFIC WORK

H. H. Shoulders, Chairman, Nashville  
 A. F. Cooper, Memphis  
 W. J. Sheridan, Chattanooga  
 Jesse C. Hill, Knoxville

COMMITTEE ON PUBLIC POLICY AND  
LEGISLATION

L. W. Edwards, Chairman, Nashville  
 T. R. Ray, Shelbyville  
 Robert Sullivan, Nashville  
 Battle Malone, Memphis  
 Tom R. Barry, Knoxville  
 J. O. Manier, ex officio, Nashville  
 H. H. Shoulders, ex officio, Nashville

## COMMITTEE ON MEDICAL EDUCATION

O. S. Warr, Chairman, Memphis  
 W. H. Witt, Nashville  
 Franklin Bogart, Chattanooga  
 Oliver Hill, Knoxville

ADVISORY COMMITTEE TO THE WOMAN'S  
AUXILIARY

B. F. Byrd, Chairman, Nashville  
 Percy Wood, Memphis  
 Eugene Abercrombie, Knoxville

## LIAISON COMMITTEE

Hiram A. Laws, Chattanooga (five years)  
 Tom Mitchell, Memphis (four years)  
 J. L. Raulston, Knoxville (three years)  
 W. C. Dixon, Chairman, Nashville (two years)  
 W. P. Wood, Knoxville (one year)

STATE TUBERCULOSIS HOSPITAL  
COMMISSION

W. S. Rude, Chairman, Ridgetop  
 O. N. Bryan, Nashville  
 H. R. Townsend, Oakville  
 James L. Hamilton, Chattanooga

## HOSPITAL COMMITTEE

Lee Gibson, Chairman, Johnson City  
 D. R. Pickens, Nashville  
 E. H. Baird, Dyersburg  
 E. Dunbar Newell, Chattanooga  
 Kyle C. Copenhaver, Knoxville  
 W. K. Edwards, Centerville  
 J. A. McIntosh, Memphis

## CANCER COMMITTEE

Ralph H. Monger, Chairman, Knoxville  
 A. M. Patterson, Chattanooga  
 J. A. Crisler, Jr., Memphis  
 James W. McClaran, Jackson  
 Howard King, Nashville  
 E. T. West, Johnson City  
 J. A. McCulloch, Maryville

*(Continued from page 166)*

2. Polymorphonuclear Leukocytes in Experimental Tuberculosis—Dr. C. E. Woodruff.

Clumps of tubercle bacilli inoculated into the peritoneal cavity of the normal guinea pig are broken up after a few hours by polymorphonuclear phagocytosis. Then certain of the bacilli grow freely for a period on the cells of the omentum without exhibiting any chemotactic influence. Clumps of bacilli, after intraperitoneal inoculation in the allergic guinea pig, are not broken up by phagocytosis but are maintained intact by a wall of leukocytes plastered tightly about them. Free growth of the inoculated bacilli does not occur. It is suggested that this altered behavior on the part of the individual leukocytes may be a manifestation of allergy in the phagocytic cells themselves.

Paper discussed by Drs. Avery and Meloney.

3. The Effect of *Treponema Pallida* Infection on the Metabolism of Rabbit Testis—Drs. Ruth M. Kraft, C. S. Robinson, and Seale Harris, Jr.

Biochemical aspects of syphilis were approached by a study of the gaseous exchanges in rabbit testicular tissue, both normal and that infected with *Treponema pallida*. The methods of Warburg and of Dickens and Simer were followed using as a medium either serum or Ringer's solution buffered by bicarbonate or phosphate. The same qualitative relationships existed in the infected tissue as were observed in the normal tissue. The metabolic rate was decidedly reduced but the type of metabolism was not changed.

Paper discussed by Drs. Robinson, Cunningham, and Morgan.

The West Tennessee Medical and Surgical Association will meet at Dyersburg on May 16. Excellent papers are to be presented.

Dr. G. A. Brandon, of Lexington, is President of the Association, and Dr. George R. McSwain, of Paris, is Secretary.



The Middle Tennessee Medical Association will meet in Pulaski on May 9-10. Requests for numbers on the program will be mailed immediately following the state meeting.

Dr. J. R. Connell, of Adams, is President of the Association and Dr. Daugh W. Smith, Nashville, is Secretary.

The doctors of Robertson, Montgomery, Cheatham, Houston, and Stewart Counties met March 13 at Clarksville. This was the regular meeting of the Black Patch Medical Society. Drs. Horton Casparis, Beverly Douglas, and E. W. Goodpasture furnished the scientific program.

The Black Patch Society has been very active since its organization and the programs have already justified the hope of the educational committee upon whose suggestion this society and others were organized.

## ABSTRACTS OF CURRENT LITERATURE

### ANESTHESIA

By HUGH BARR, M.D.  
Medical Arts Building, Nashville

A Consideration of the Susceptibility and Resistance of Tissues to the General Anesthetics. Wm. DeB. McNider, M.D. The Diplomat, January, 1935.

Previous experimenters have overemphasized the action of general anesthetics on the brain and spinal cord. Through research we now realize these agents also influence such tissues as the heart, liver, and kidneys and, in a broader sense, the life processes of all cells, both animal and plant. General anesthetics have qualities that not only produce unconsciousness and insensibility to pain, but also have qualities that carry all cells, some more rapidly than others, to a state approaching death, which, when interrupted, permit the resumption of the processes of life.

It has been held that the effect of general anesthetics are due to the affinity of these agents for the lipoids of the central nervous system, but tissues and organisms lacking in lipid tissue and having an imperfect or no nervous system being

affected by anesthetic agents makes us turn our attention to other factors to explain the affinity to these structures. Tissues other than nervous, especially when pathological, may take on a marked affinity for anesthetic agents.

In some functional studies of effect of anesthetics on diuresis, it was found that dogs, suffering from acute nephritis caused by uranium nitrate, remained diuretic during anesthesia and even responded to diuretics, with two exceptions. Under chloroform anesthesia, they became anuric and failed to respond to diuretics. Kidneys from chloroformed dogs showed anuria and actual necrosis of the tubular epithelium, proving the binding power of renal tissue for chloroform is greater than that for ether. One exception was found in regard to ether in old dogs. Anuria was encountered, introducing age as a determining factor as whether ether was toxic to the kidneys. This is explained by more lipid tissue being in the kidneys of senile dogs. The other exception was the affinity of ether to kidney cells that occurred during gestation.

Dogs starved for 24 hours, then anesthetized with chloroform for one and one-half hours, showed liver necrosis. After this necrosis has been repaired, not by a normal liver cell but by regenerating a flattened, atypical type of cell which has a cord-like appearance, an acquired resistance to chloroform takes place. Subsequent chloroform anesthesia for 3 hours, after 48 hours of starvation, failed to show liver necrosis. By repetition of this several times, only a modified central necrosis could be obtained.

### DERMATOLOGY

By E. E. BROWN, M.D.  
Doctors Building, Nashville

The Tuberculin Treatment of Lupus Vulgaris. Robert Aitken. Brit. J. Dermat., May, 1934.

Aitken discusses the work with tuberculin at the skin department of the Royal Infirmary, Edinburgh, with Sir Norman Walker. The work began twenty-seven years ago. In 1913, when Aitken began the work, two methods were employed. Patients able to come to the ward were admitted and given a dose of Koch's original tuberculin (O. T.). Those unable to get off for the three days necessary for these injections were given Koch's new tuberculin (T. R.). The histories of five patients are presented, together with eight clinical photographs showing the results of treatment. Tuberculin treatment was stopped in the skin department only when practically all the patients were being treated with light baths. Aitken states that in an exten-

sive case of lupus tuberculin would be his remedy of choice, if he could not give general ultraviolet ray treatment, and that it could well be given in addition to the light baths.

## OPHTHALMOLOGY

By ROBERT J. WARNER, M.D.  
Doctors Building, Nashville

**Severe Visual Disturbance in Pregnancy Through Lesion of the Chiasm.** G. Peremy. *American Journal of Ophthalmology*, March, 1935.

A woman aged forty years had lost the vision of one eye during three pregnancies. The eye showed primary optic atrophy. During the fourth pregnancy the vision of the other eye began to fail and a central scotoma was found which was later followed by hemianopia. The retrobulbar neuritis is considered by the author of toxin origin (Uhthoff) and the later chiasmal symptoms as belonging to the group of visual disturbances due to hyperplasia of the hypophysis in pregnancy (Erdheim). Termination of pregnancy resulted in marked improvement of visual acuity.

**Retinoblastoma—Report of a Case with Complete Observations at Autopsy.** M. Jaffe. *American Journal of Ophthalmology*, March, 1935.

The right eye of an otherwise normal colored girl, aged two years, was enucleated for a retinoblastoma which almost completely filled the vitreous chamber but did not extend into the optic nerve. Examination six months later showed a recurrence which filled the orbit and protruded between the lids. The left eye was normal. The right orbit was exenterated and radium applied. The general condition was very poor, with edema of scalp, forehead, and pharynx, a hard infiltrating mass in the mouth arising from the maxilla, enlargement of the liver, ascites, edema of the lower extremities, and marked anemia. Death occurred nine days later and necropsy revealed bronchopneumonia and metastases to the skull, scalp, lymph nodes, liver, ovary, and inferior maxilla.

## PEDIATRICS

By JOHN M. LEE, M.D.  
Doctors Building, Nashville

**Meningococcic Meningitis—A New Form of Therapy.** Archibald L. Hoyne, M.D., Chicago. *Jour. A. M. A.*, March 23, 1935.

Until recently no one had demonstrated a soluble toxin in meningococcus cultures. Ferry reports having accomplished this with the four recognized

Gordon types of this organism. These toxins produce specific antibodies when injected into animals, and convalescent serums show neutralizing properties toward homologous toxins. Ferry concludes that, in laboratory animals, the symptoms in meningococcus meningitis are due to the selective action of these toxins on the cerebrospinal nervous system.

Animals receiving lethal doses of toxin intracisternally or lethal doses of viable meningococci intraspinaly could be protected by intraperitoneal injections of antitoxin but not by standard antimeningococcus serum. Animals immunized by sublethal doses of toxin intracisternal were resistant to lethal doses of live cultures. Susceptible human beings can be immunized against meningococcus toxin as revealed by subsequent skin test.

Over a period of about a year and a half the author treated 102 patients with meningococcus meningitis with the experimental antitoxin of Ferry with a mortality rate of 20.5 per cent. During the same period 211 patients with this disease were treated with two well-known brands of antimeningococcus serum with a mortality rate of 45.9 per cent. All of these cases were treated in the Cook County Hospital, Contagious Disease Department, Chicago. Approximately every fifth to seventh patient received antitoxin at first and every third patient during the latter half of the period. Patients to receive antitoxin were selected only by reason of their not having had previous serum therapy. The age of all patients ranged from 3 months to 80 years.

In his work the author finds that the death rate from meningococcus meningitis has been reduced about 50 per cent. It is felt that intrathecal treatment once in 24 hours is sufficiently often. Except in case of spinal block, lumbar puncture for treatment or drainage is preferable to cisternal puncture. While the intravenous use of serum has seemed of value in the past, the intravenous use of antitoxin is of even greater value. The more antitoxin given intravenously, the less will be required intrathecally.

The following plan of treatment is suggested:

1. Intravenously from 60 to 100 cc. of the antitoxin is administered in from 120 to 200 cc. or more, respectively, of physiologic solution of sodium chloride or 10 per cent dextrose solution. The smaller amount may suffice for a child, the larger quantity for an adult. This form of treatment may be repeated daily if the condition of the patient seems to require it. As a rule, one large dose intravenously when therapy is started will prove sufficient by this route.

2. Intraspinaly the amount of antitoxin, undiluted, and given by the gravity method, will be



governed by the volume of spinal fluid withdrawn. Usually the quantity of antitoxin administered should be less than the amount of spinal fluid released. The initial dose of antitoxin intraspinally will usually vary from 20 to 40 cc. Daily punctures should be made until the fluid is clear and free from organisms. At such a time the cell count of the spinal fluid will generally be less than 100.

3. Intramuscular administration of serum in an initial dose of from 30 to 60 cc. is of value, but because of the serious nature of the disease the intravenous route is to be preferred.

### **SURGERY—GENERAL AND ABDOMINAL**

By ROBIN F. MASON, M.D., F.A.C.S.  
735 Medical Arts Building, Memphis

**Acute Mechanical Intestinal Obstruction — Mortality With and Without Enterostomies.** Amos Fey, M.D., Galesburg, Ill., and William R. Cubbins, M.D., F.A.C.S., Chicago. S. G. & O., March, 1935, Vol. 60, Number 3.

The writers begin by deprecating the loose talk that has been broadcast for the past 15 years in regard to the virtues of the enterostomy in cases of acute intestinal obstruction. They state that many writers recommend enterostomy, but make no mention of any attempt to relieve the obstruction.

This paper is a critical study of 241 cases from the records of the Cook County Hospital. The writer's hopes are to extract from this study something that will be helpful in the handling of such cases in the future.

This record comprises all cases of "Acute Mechanical Obstruction" during the years 1922-1931, but does not include strangulated external hernias. Only cases operated upon are mentioned. All cases represented acute surgical emergencies. The cases are quite evenly divided between the sexes.

As to etiology, it was found that 74 per cent of cases were caused by bands, adhesions and herniation into foramina. Nineteen per cent, or 34, had had no previous surgery. The cause of the obstruction in 23 of these cases was not determined. In the 11 remaining cases, the cause was adhesions due to inflammatory processes.

Intussusception was the next most frequent cause, (8.7 per cent) mostly in infants under two years of age. Internal hernias caused 5 per cent of the cases in this series. The origin of these foramina is probably congenital.

Volvulus occurred in 3.7 per cent due to adhesions. True volvulus not associated with adhe-

sions or previous operation constituted 1.7 per cent cases.

#### **SYMPTOMATOLOGY**

The cardinal signs of obstruction were pain, nausea, vomiting, and constipation. Pain was invariably present and was the first thing complained of. The location of the pain was most often in the umbilical region. Pain is worth little as a localizing symptom, since it becomes generalized usually and less severe.

Vomiting occurred shortly after the obstruction took place and increased as time and the obstruction progressed.

Obstipation was as constant as pain and nausea but more confusing in its interpretation as enemata may produce bowel evacuation below the obstruction. Enemas were given in 97 cases classified as "Complete Obstruction." In 88 per cent enemas returned clear or were noted as "poor results."

Results following enemas in 17 cases of partial obstruction were 58.8 per cent good and 41.2 per cent poor. In doubtful cases a second enema should be given.

#### **PHYSICAL FINDINGS**

Most of the cases had no temperature, even where gangrene was present. Some few cases of gangrene had an increased temperature and a small number of cases had temperature from 101 to 103. Some of this may have been due to dehydration. There was no correlation between the temperature and leucocyte count. The pulse rate and respiratory rate increased with the distention and toxicity.

Tenderness on palpation was noted in 167 cases. Where there were masses, the tenderness was more localized there. The most important abdominal finding was increased peristalsis upon auscultation. Visible peristalsis was noted only a few times. Absence or decreased peristalsis denotes bowel injury apparently as 56 patients with this symptom died. Even in the absence of gangrene this symptom is ominous.

The leucocyte count is not as reliable in determining the advent of gangrene as might have been expected. The mortality rate in this series was 42.7 per cent.

Delay in operation did not produce the dire results one would have expected in this particular series, yet the writers are of the opinion evidently that delay in treatment is courting disaster.

Enterostomy did not bring about the beneficial results hoped for, such as drainage and decompression, nor did it preclude rupture of a gangrenous intestine.

The writers believe however that a proper enterostomy proximal to the resection of an injured or gangrenous area will prove of great value.

"Clinical and autopsy findings show that mechanical damage to the intestine from distention and strangulation, causing gangrene and peritonitis, or peritonitis before the development of actual gangrene, is the usual primary cause of death in acute mechanical intestinal obstruction. However, in addition to these pathological changes, one must never lose sight of the marked dehydration which is uniformly present in all cases of obstruction; in our opinion, the restoration of the body fluids with isotonic salt solutions, when administered by intravenous and subcutaneous methods, is a life-saving procedure."

## UROLOGY

By TOM R. BARRY, M.D., F.A.C.S.  
Medical Building, Knoxville

Epithelioma of the Penis. Archie L. Dean. Jour. Urology, March, 1935.

This study is based on 120 patients treated at Memorial Hospital, New York City. These cases comprised 1.25 per cent of all malignancies in male admissions. Average at onset of symptoms was fifty, the oldest was eighty-one, and the youngest twenty-four. Seven per cent were under thirty, and forty per cent under fifty at the time of onset. The highest incidence was in the sixth decade. Ninety-three per cent were white.

Occupation played no part in the production of cancer. The greatest number were from the lower strata of life, this being explained by lack of hygiene. In this series syphilis was either admitted or proven in thirty-four per cent of seventy patients, and the author thinks syphilis predisposes to cancer of penis, but all cases also had a history of chronic irritation.

Jews do not have cancer of the penis due to the fact that all are circumcised in childhood. There is no authentic case of cancer of the penis in an individual circumcised in childhood. The type of prepuce has a very definite etiologic bearing. In this series 33 per cent were classified as tight, 31 per cent long, and a combination of these in 26 per cent, 4 per cent were adherent, 65 per cent had difficulty in retracting the foreskin. The author thinks that after circumcision in infancy, a denser, thicker epidermis develops. He thinks trauma not an important factor. The proximal third of glans is the commonest site.

He describes two types of cancer of the penis, the flat, and papillary; forty-three per cent of this series were papillary.

The flat tumors usually first appear as small

round ulcers on a slightly elevated base, papillary tumors appear as small warts. Ulceration occurs late. The rate of growth is the same in both.

Buck's fascia is a natural barrier to cancer extension. When the cavernous tissue is involved, the spread is rapid. The corpus spongiosum is last involved.

Metastasis occurs by embolism. Tumor cells separate from the growth and are carried to the regional nodes by the lymphatics. The lymph vessels draining the penis are three: Fist, the prepuce, frenum, and skin to the inguinal nodes. Some of these communicate with deeper nodes close to the femoral artery. Second, the glans to nodes in front of the symphysis. From here to the inguinal nodes, iliac nodes, and external iliac nodes. Third, the urethra to the deep inguinal nodes, external and internal iliac nodes. The inguinal nodes are usually first involved.

In addition to the above locations, metastasis was found in the supraclavicular fossa, ribs, scalp, within the peritoneal cavity, kidney, prostate, seminal vesicles, and testes. Flat tumors metastasize earlier.

Symptoms are described as burning, itching, or sticking pains, a hard lump may be felt under the prepuce. When ulceration is present, bleeding is present. A scaly skin on the glans may be the first indication of cancer. If growth is near the urethra, urinary obstruction may be complained of.

Diagnosis from syphilis, tuberculosis, papillomatosis, and granuloma inguinale should be made.

Biopsy should be done in every suspicious lesion. Aspiration biopsy in any suspicious nodes is recommended. Of the aspirated nodes in this series, 50 per cent were malignant.

Histologically these tumors are almost all grades one or two, and are radioresistant.

Treatment. All male infants should be circumcised a few days after birth. After the lesion has appeared, treatment should first be directed at the control of the tumor and metastasis.

The ideal method is to remove the growth completely. X-rays are not used either for the growth or metastasis. Fulguration does not completely remove the cancerous tissue, and some have been activated by its use. Surgery with the scalpel seems to render the best results, even better than electric cutting machines. Radium has a field but should not be used when the tumor is more than 2 cm. in diameter, or when it has invaded deeper tissue. About 1.5 cm. should be removed with the growth. Surgery of the lymphatics should be delayed suffi-



ciently long after amputation to allow the infection to subside.

Of 12 patients with superficial tumors without metastasis, 75 per cent are living from one to thirteen years.

Of 51 cases with extensive primary tumors without metastasis 64 per cent are living from one to twenty years.

Of 40 patients with metastasis only 5 per cent are living.



Drug or Detail Salesman calling regularly on dispensing physicians, free to accept non-competing line. Liberal commission and full protection. Give present line, territory covered, and number of trips per year. Complete cooperation and direct mail assistance. Gaston Moreau, 509 Fifth Avenue, New York, N. Y.

Order Reprints From  
McQUIDDY PRINTING COMPANY  
Nashville, Tennessee

**JOE MORSE & CO.**

**Clothiers and Furnishers**

619-621 CHURCH STREET

FACING CAPITOL BOULEVARD

NASHVILLE :: TENNESSEE

*Quality Pure*  
PERFECTLY PASTEURIZED

**MILK**

EVERY Medical School in This Country Teaches  
Pasteurization of Milk as a Health Safeguard

VISITORS WELCOME

**ANTHONY PURE MILK CO.**

504 Woodland St.

Nashville, Tenn.

# THE JOURNAL

OF THE

## TENNESSEE STATE MEDICAL ASSOCIATION

DEVOTED TO THE INTERESTS OF THE MEDICAL PROFESSION OF TENNESSEE

ISSUED MONTHLY, Under Direction of the Trustees

H. H. SHOULDERS, M.D., Secretary and Editor

W. M. HARDY, M.D., Asst. Secretary-Editor

OFFICE OF PUBLICATION, 510 DOCTORS BUILDING, NASHVILLE, TENNESSEE

Volume XXVIII

MAY, 1935

No. 5

### THE ROLE OF PHYSICAL THERAPY IN MEDICINE\*

A. J. KOTKIS, M.D., St. Louis, Missouri

IN THE FINAL ANALYSIS, the end results in the treatment of the sick are of utmost concern not only to the doctor but also to the patient. The success or failure of any form of therapy or therapeutic agent in medicine is gauged by its action on living patients in restoring normal function. Contrary to the common impression imparted by clinical teachers, that if a correct diagnosis is made the treatment is easy, the fact stands that in the majority of instances the proper correlation of measures taxes the therapeutic ingenuity of the medical practitioner to the utmost. The proper choice of these measures oftentimes spells the difference between invalidism and health.

We have only to review medical history to note the trend of therapy throughout the centuries. From the time of the earliest man, massage and exercise were the first remedial measures to be used. This was the birth of physical therapy. Thence, newer methods were invoked, oftentimes at the expense of these simpler measures. As time progressed up through the centuries, we find the birth of surgery with the barber surgeons and the advent of medicine with the herb pickers. During the last decade of the past century, a tremendous impetus was added to the scientific progress of medicine by the epoch-making discoveries of Erlich in chemistry and Roentgen and D'Arsonval in physics. Erlich became the "Father of Chemotherapy" by his work of altering

pharmacological reactions of chemical compounds in changing the radicals, particularly those on the benzene ring. This, in reality, was the birth of structural chemistry. This discovery has reached to such tremendous heights that, today, pharmaceutical houses have literally flooded the medical profession with preparations too numerous to mention. Roentgen's discovery of X-rays stunned the world; enthusiasm and imagination waxed high. The medical profession pounced on it and was quick to see the possibilities, and today it is a physical measure that is one of our most important diagnostic agents. D'Arsonval's discovery of high-frequency currents seemed to have brought an entirely different reaction. Irregular and unethical practitioners were first to take it up, and the resulting claims of efficacy were so exaggerated that scientific medicine soon put it into disrepute. It was not till nearly the end of the World War, when the government hospitals were filled with crippled soldiers, that the cobwebs and stains were brushed from physical therapy, which was then set to work in the process of rehabilitation. This period can be considered the rebirth of therapy by physical measures. The term, physiotherapy, by which this practice was first known and now held to be a misnomer, was changed to an apparently more appropriate title, physical therapy. In some sections, particularly in England, steps already have been taken to classify the use of physical agents under the heading of physical medi-

\*Read before the Tennessee State Medical Association, Nashville, April 9, 10, 11, 1935.



cine, and all literature pertaining to the use of these measures in therapeutics is now listed under this latter heading.

The confusion now existing in the minds of a great majority of medical practitioners regarding the exact role of physical therapy will bear much comment. Time and space will permit but a brief discussion of but several of the vital points.

It is, therefore, the intention of limiting this discussion to—

(1) Lack of knowledge regarding the use of physical measures.

(2) By acquiring the necessary knowledge, the role physical agents will play in therapeutics.

#### LACK OF KNOWLEDGE

The lack of knowledge among medical men concerning the physical and physiological reactions resulting from the use of our most common physical measures is very unfortunate and little short of deplorable. This unfortunate state of affairs has led to many abuses. Principal among these is the method by which many medical men have been led into the purchasing of expensive equipment, particularly electrical apparatus, from which had been promised marvelous cures — many nigh unto miraculous. Disappointments in results obtained were very prevalent, and many of these can be charged to the application of these measures when applied to many undiagnosed pains. All in all, this was nothing more than machine therapy, and very little more could have been expected.

Many promises of lucrative monetary gains have been made by certain unscrupulous salesmen. A large majority of medical practitioners have been led to believe that little or no training was necessary—all one had to do was to turn on a switch, make a certain setting, and then let the machine do its work. No stress, and in many instances not even a mention, was made of the time consumed in giving a treatment and the training necessary to correlate the proper combination of physical agents with recognized medical and surgical procedures. The busy general practitioner with a waiting room full of patients was soon to learn of this predicament. Much of his electrical

equipment soon found itself in a corner collecting dust.

In other instances, and oftentimes due to the stress of circumstances, general practitioners have been led into the use of certain measures which invariably were improperly performed. Several of these I would like to stress. First, the promiscuous electrocoagulation of tonsils is and should be frowned upon, because in the majority of instances varying amounts of tonsil still remain in the fossae. It is a measure that has its place particularly on patients who have definite contraindications for surgical tonsillectomy and should be performed by one well informed in the anatomy and pathological histology of the throat. Secondly, the use of negative galvanism and positive copper ionization on hemorrhoids has been terribly misused. It is the well-informed man who knows when to and when not to use these measures. However, when properly performed, these physical agents do ameliorate distressing symptoms of patients who positively refuse surgery and who otherwise would find their way into the clutches of quacks.

On the other hand, let me comment on a very glaring neglect—that is the long-convalescing, bedridden patient. We all desire a large and rapid turnover of patients. Our enthusiasm runs high when we can remove some ailment by surgery and soon have the patient go on his way, but this enthusiasm seems to wane very miserably when we have to struggle with this vexing problem of very long and very slow convalescence. Only too often, these patients slip out of our control to hunt for more direct ministrations in other quarters, particularly with chiropractors and osteopaths who are fast reverting to the use of physical therapy. We are even more chagrined when we know of some prominent fellow physicians resorting to osteopathic care. This problem can be successfully combated only by the intelligent application of physical therapy in the hands of the medical profession.

#### ACQUIRING THE NECESSARY KNOWLEDGE

Now we have before us the problem of acquiring the necessary knowledge concern-

ing the intelligent application and correlation of physical measures in the practice of medicine. On serious deliberation, it is evident that this problem is a tremendously large and difficult one when all the phases are considered. It is one which we cannot hope to accomplish in the present generation, but we can do much to improve conditions as they now exist.

It has been suggested that the problem of instruction be considered by the following manner of approach—

1. Undergraduate instruction.
2. Postgraduate instruction.
3. Scientific research.

*Undergraduate Instruction.* More and more medical schools, in this country as well as abroad, are fast realizing the need for instruction on the principles and practice of physical therapy, and many of these schools already have inaugurated courses for their medical students. Some of the schools we find heading the list are: Chicago and Northwestern Universities at Chicago; Cornell and Columbia at New York; Harvard at Boston; Yale at New Haven; Jefferson, Temple, and the University of Pennsylvania at Philadelphia; Washington and St. Louis University at St. Louis. With such an array of medical institutions interested in the need for rational use of physical therapy, it is very evident that the future crop of physicians should be and undoubtedly will be well grounded in the fundamentals necessary for the rational application and correlation of physical agents. This type of interest should have a very wholesome effect on future research.

*Postgraduate Instruction.* The problem of postgraduate instruction is a tremendously big and apparently very difficult one. As I have already stated, it is one which we cannot hope to accomplish fully in this present generation but, with a real spirit of cooperation on the part of medical practitioners in general, much can be done to improve existing conditions. It will be necessary to do much long-range planning.

After some very intensive study regarding how this problem can best be approached, it seems to me that the following plan should bring the best results:

It has been suggested that a State Committee on Physical Therapy be appointed by the Executive Council of the State Medical Association. This committee should consist of a surgeon, an internist, an orthopedist, a roentgenologist, and a neurologist. The men to be chosen should have a sympathetic interest in the need for the proper application of physical therapy, and on them should rest the entire responsibility of carrying out a definite program after making a thorough survey of existing conditions. While working in close harmony with the Program Committee and the State Committee on Medical Education, they should accomplish much in outlining very interesting and instructive programs at state and county or district meetings, seminars at city medical societies, and clinics for practical instruction at physical therapy departments in the teaching hospitals of the medical schools of that particular district. This is not a new plan. The success of the physical therapy seminar held under the auspices of the Philadelphia Medical Society several years ago was most encouraging. The Committee on Physical Therapy to the California State Medical Association is doing admirable work in resisting proposed legislation instigated by chiropractors and osteopaths who wanted their boards to have control of all examinations for physical therapy technicians, and to have listed under their particular branch of therapy all physical agents because the medical profession did not use them.

*Research.* Up until about five years ago, very little noteworthy scientific research was in progress. Much of the available data came from laboratories of manufacturers, or through certain medical men who were subsidized by them. All recommendations for application of measures were empirical, and few seemed to be based on sound reasoning. However, with medical schools becoming more interested, many biological as well as physiological departments are diligently studying reactions of the body to various physical agents. Concrete evidence that can be corroborated is now being given to the clinician in increasing amounts for application in practice. Recently, several



outstanding contributions have been presented. One, "Mecholyl Ionization in Circulatory Diseases of the Extremities," gives much promise of presenting to the medical profession a method by which a powerful vasodilator can be readily controlled. Another contribution which is attracting especial attention is "The Application of Air Pressure and Vacuum to Peripheral Circulatory Disease." The question of artificial heat by physical means has apparently reached a rational level, and the medical man now knows that results are best when combined with medical measures. In the mind of the average medical man, articles such as "Doctor Heat" and "Friendly Fever," written by very versatile nonmedical writers, do much to disturb confidence.

Gentlemen, whether you do or do not know it, we are slowly but surely entering a new era in the practice of medicine. More emphasis, more stress is being placed upon the application of physiology in medicine and surgery. No longer are we treating the patient in parts; due consideration is being given him as a whole. It is only natural that rational physical therapy is fitting into the picture as a decided help to other phases

of therapeutics in preventing destruction of tissue and conserving body function. Physical therapy as a whole, and not a small part, should command the attention of every conscientious physician.

#### CONCLUSIONS

(1) In spite of all its abuses, physical therapy is a very valuable therapeutic procedure.

(2) The correction of these abuses lies in the hands of the general practitioner, when he gains the necessary knowledge regarding the proper use of physical agents.

(3) A plan for postgraduate instruction has been suggested, and it is one which should go far in putting the use of physical therapy on the high plane it deserves.

(4) This plan is a suggestion from the Committee on Education to the Council on physical therapy and will have the approval of this body as long as it is free of commercialism.

(5) By this postgraduate instruction, the general practitioner will get authentic information, and at the same time he will have somewhere to turn for advice.

## REPORT OF DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION — THE CLEVELAND SESSION — JUNE, 1934\*

THE EIGHTY-FIFTH annual session of the American Medical Association, held at Cleveland, June 11-15, 1934, was a truly remarkable event. There was a fine attendance, from states and territories, with a registration of about 6,300 fellows. A very considerable number of physicians from other countries honored the occasion with their presence, the largest group coming from Canada. The facilities provided by Cleveland hotels and the municipally owned auditorium were splendid, and the local committee on arrangements, under the chairmanship of Dr. C. W. Stone, gave most careful attention to every detail concerned with necessary arrangements or with the comfort and convenience of visiting physicians. Entertainment features were of the most delightful nature, and the hospitality for which Cleveland is noted was in evidence on every hand.

The section meetings and the general scientific meetings were well attended, and all of the scientific programs were fully up to the highest standards. The scientific exhibit was—if hundreds of commendatory expressions are to be accepted—beyond praise. If there are any who believe that the physicians of this country are not earnestly interested in medicine for its own sake, a little firsthand observation of what transpired at Cleveland would surely have been convincing.

It is to be doubted that there has ever been a finer display of the tools and materials used by physicians in their everyday work than was to be found in the technical exhibits.

The House of Delegates disposed of an unusually large amount of important business during its several sessions. There were few times when all delegates were not present. Here, again, any doubters of the sincerity of purpose and the truly earnest spirit of the chosen representatives of the organized medical profession of the United

States would have had their doubts dispelled by observation of what actually transpired. Every meeting of the house was marked by orderly procedure, eager interest on the part of every delegate, the most intense attention to every item of business, and a most apparent determination to safeguard the interest of medicine and promote public welfare. The Reference Committee worked earnestly and efficiently—the reports were carefully prepared and promptly presented. More than one of the oldest members of the house, in point of service, were heard to express pride in the fact that they were members of that body. What was of even greater interest—to this writer, at least — was that three delegates serving their first terms expressed their satisfaction over what they had observed concerning methods of procedure, the fairness and efficiency of presiding officers, the thoroughness of the work done by committees, and the fine spirit exhibited by members of the house in all of its meetings.

Some of the most important transactions of the House of Delegates were as follows:

### REPORT OF SPECIAL COMMITTEE OF HOUSE OF DELEGATES

The complete report of this committee appeared in the *Journal*, June 10, 1934, pp. 2199-2201. Only the latter part of it is here reproduced.

The chairman of the Board of Trustees presented the following statement at an earlier session of the house.

Since 1912, when the British government, through the action initiated by Lloyd George, established a system of compulsory insurance, this problem has been prominently before the House of Delegates and other official bodies of the American Medical Association. As early as 1916, the House of Delegates requested the Board of Trustees to undertake an investigation of social insurance in all its forms and to make suitable report to the house. The subject has been raised from time to time since that date. On every occasion on which the

\*The House of Delegates of Tennessee Medical Association directed that this report be published at this time rather than in December.



House of Delegates has officially considered the questions of compulsory health insurance and social insurance, as well as the entrance of the state into medical practice, it has reaffirmed the independence of medicine as a profession, and it has always condemned any system whereby the state would in any way enter into the practice of medicine. In 1920, following the report of the committee appointed to study compulsory health insurance, the House of Delegates adopted a resolution strongly condemning all forms of compulsory health insurance. It is a well-known fact that voluntary insurance has always been the forerunner of compulsory insurance, and even the most ardent advocates of voluntary insurance admit that fact. The action of that House of Delegates has not been rescinded by any subsequent action taken by the House of Delegates.

As far as state medicine is concerned, the House of Delegates in 1921 adopted a resolution approving and indorsing all activities and policies of the state directed to the prevention of disease, but opposing the state treatment of disease except for the delinquent and defective. Again in 1922 the association declared its opposition to all forms of state medicine because of the ultimate harm that would come thereby to the public weal through such form of medical practice.

The Judicial Council of the association has repeatedly brought reports to this House of Delegates sustaining the same point of view, and all these reports of the Judicial Council have been accepted and approved by the House of Delegates.

Finally, last year the House of Delegates unanimously approved in principle the Minority Report of the Committee on the Costs of Medical Care and urged that the Board of Trustees of the American Medical Association in cooperation with its constituent bodies conduct an intensive campaign to disseminate this point of view among the medical profession and the public, with a view to the maintenance of high ethical standards and the preservation of professional ideals.

Your Board of Trustees, your executives, and all the publications of this association have done their utmost thus far to carry out the policies which you have established. It is no secret that a considerable number of foreign nations have already established state systems of medical care, and that an intensive campaign has been carried on in this country for many years, led by philanthropists, social workers, economists, and various foundations, to cause the American medical profession and the American people to accept a similar type of medical practice. In accordance with the mandate of this House of Delegates, all the facilities of the American Medical Association have been used to oppose this trend and the propaganda in support of it, which has been widely circulated, and for which vast sums of money have been and are being expended by various interested parties. It is also now well known that the President of the United States, in a recent message, has come forth for the principle of social insurance, with special reference to old-age pension and unemployed insurance.

In 1920 the House of Delegates recommended to the Board of Trustees the establishment of a Bureau of Medical Economics in the headquarters office for the study of all these problems as they affect the medical profession. From time to time this bureau has issued bulletins of the greatest importance, not only for the actual data which they present but also for the interpretation of medical economic trend. In accordance with a special request by the Board of Trustees, your Bureau of Medical Economics has prepared an extended statement of the condition in relationship to state medicine and compulsory insurance, as they exist in other nations. This statement was made available to all fellows of the American Medical Association by publication in the bulletin of the association for April, 1934. In connection with this data the Bureau of Medical Economics has also drawn up a statement entitled *Sickness Insurance Problems in the United States*, which purports to be an interpretation of the data already referred to, and which should be given most careful study in relationship to any recom-

mendations that this house may care to make on this problem for the future. This statement will now be distributed to the House of Delegates.

There are manifestations of unrest in relationship to the economic situation among some of the component and constituent bodies of this association. On several occasions, communications have been made to the Board of Trustees and to the headquarters office, urging a change in the activities of the organization which would in effect demand a departure from the policies set down by this House of Delegates during the past eighteen years. The problem is before you. The opportunity is offered here for an extensive discussion of the situation as it confronts the medical profession today. The Board of Trustees hopes that you will give it earnest and careful consideration. Only the House of Delegates has the power to define the policies that are to guide this association in the coming years.

Your committee believes that this statement of the chairman of the Board of Trustees, briefly reviewing the history of the action of the House of Delegates during the past eighteen years, sufficiently illuminates the sincere and deep concern of the American Medical Association regarding all social programs affecting the delivery of medical service.

The delegates have in their hands a pamphlet entitled "Sickness Insurance Problems in the United States" as presented by the Board of Trustees.

Your committee does not recommend any plan, but has abstracted from the pamphlet the following principles and suggests that they be followed by all constituent bodies of the American Medical Association as bases for the conduct of any social experiments that may be contemplated by them:

*First*—All features of medical service in any method of medical practice should be under the control of the medical profession. No other body or individual is legally or educationally equipped to exercise such control.

*Second*—No third party must be permitted to come between the patient and his physician in any medical relation. All re-

sponsibility for the character of medical service must be borne by the profession.

*Third*—Patients must have absolute freedom to choose a legally qualified doctor of medicine who will serve them from among all those qualified to practice and who are willing to give service.

*Fourth*—The method of giving the service must retain a permanent, confidential relation between the patient and a "family physician." This relation must be the fundamental and dominating feature of any system.

*Fifth*—All medical phases of all institutions involved in the medical service should be under professional control, it being understood that hospital service and medical service should be considered separately. These institutions are but expansions of the equipment of the physician. He is the only one whom the laws of all nations recognize as competent to use them in the delivery of service. The medical profession alone can determine the adequacy and character of such institutions. Their value depends on their operation according to medical standards.

*Sixth*—However the cost of medical service may be distributed, the immediate cost should be borne by the patient if able to pay at the time the service is rendered.

*Seventh*—Medical service must have no connection with any cash benefits.

*Eighth* — Any form of medical service should include within its scope all legally qualified doctors of medicine of the locality covered by its operation who wish to give service under the conditions established.

*Ninth*—Systems for the relief of low-income classes should be limited strictly to those below the "comfort level" standard of income.

*Tenth*—There should be no restrictions on treatment or prescribing not formulated and enforced by the organized medical profession.

The report of the committee was adopted, section by section and as a whole, on motions of Dr. Van Etten, duly seconded and carried, with the substitution of the words "legally qualified doctor of medicine" for the word "physician."



### REAPPORTIONMENT OF DELEGATES

The report of the Reference Committee on Reapportionment of the Delegates was adopted as follows:

The present apportionment of delegates is on the basis of one delegate for each 800 members or fraction thereof. Each constituent association is represented by at least one delegate, irrespective of the number of members.

The By-Laws specifically provide that the total membership of the House of Delegates shall not exceed 175. The total membership of the association on April 1, as recorded in the office of the secretary, was 98,041.

An apportionment on the basis of one delegate for each 750 members would produce a total of 177 delegates, two more than are permitted by the By-Laws.

On the basis of one delegate for each 775 members, the total membership of the house would be 172, which is one less than the present membership. On this basis, Pennsylvania and Texas would each gain one delegate, while Alabama, Illinois, and North Carolina would each lose one delegate.

On the basis of one delegate for each 800 members, the total membership of the house would be 168. On this basis, Alabama, Illinois, North Carolina, Oklahoma, and Tennessee would each lose a delegate.

The committee recommends that the apportionment of delegates for the next three years be made on the basis of one delegate for each 775 members or fraction thereof. Each state medical association, irrespective of the number of members, no matter how small its membership may be, is entitled to one delegate. On this basis, the membership of the house will be 172.

### AMENDMENTS TO PRINCIPLES OF MEDICAL ETHICS

Chapter 11, Article VI, Section 2, of the Principles of Medical Ethics was amended, on the suggestion of the Judicial Council and on recommendation of the Reference Committee on Constitution and By-Laws, by adding:

By the term "contract practice" as applied to medicine is meant the carrying out of an agreement between a physician or a

group of physicians, as principals or agents, and a corporation, organization, or individual, to furnish partial or full medical services to a group or class of individuals for a definite sum or a fixed rate per capita.

Contract practice *per se* is not unethical. However, certain features or conditions, if present, make a contract unethical—among which are: (1) when there is solicitation of patients, directly or indirectly; (2) when there is underbidding to secure the contract; (3) when the compensation is inadequate to assure good medical service; (4) when there is interference with reasonable competition in a community; (5) when free choice of a physician is prevented; (6) when the conditions of employment make it impossible to render adequate service to the patients; (7) when the contract, because of any of its provisions or practical results, is contrary to sound public policy.

Each contract should be considered on its own merits and in light of surrounding conditions. Judgment should not be obscured by immediate, temporary or local results. The decision as to its ethical or unethical nature must be based on the ultimate effect for good or ill on the people as a whole.

### REPORT OF JUDICIAL COUNCIL ON RESOLUTION PERTAINING TO ACTION OF COLLEGE OF SURGEONS

Dr. George Edward Follansbee, Chairman, presented the following report:

A resolution introduced by Dr. Charles J. Whalen, Illinois, calls attention to a recent action by the Medical Service Board of the American College of Surgeons, approved by its Board of Regents, advocating and publicizing a procedure for furnishing medical and hospital care for certain classes of the population. No consideration appears to have been given to policies or procedure previously adopted by the American Medical Association, of which the Board of Regents are members. The American Medical Association is the one organization representing the entire body of physicians constituting the medical profession, and by virtue of that fact is the only organization qualified to speak for the varying interests and ideas of the profession as a whole.

Recurring proposals concerning the entire practice of medicine from small sections of the profession, without due regard to the policies of the entire profession as represented by the American Medical Association when presented to the public through other channels than the representative body, are confusing to the public mind, are harmful to the profession, and give aid and assistance to those bodies and individuals attempting to revolutionize medical practice.

The Judicial Council, therefore, recommends the adoption of the resolutions as follows:

"Whereas, The American Medical Association, including 100,000 physicians, is the only democratic body representing the organized profession of this country through delegates regularly elected through county and state medical societies; and

"Whereas, Other medical organizations and groups, representing selected groups of specialists, have from time to time issued pronouncements of policies in the field of medical economics and medical practice, which do not represent the views of organized medicine, and which purport to guide the medical profession and the public in the administration of medical affairs, and

"Whereas, The House of Delegates of the American Medical Association has repeatedly condemned the issuing of such announcements and policies, which seriously embarrass the attempts of this organization to secure adequate care for the health of the American people and to protect the ideals of the medical profession; and

"Whereas, The Board of Regents of the American College of Surgeons, assembled in Chicago, June 10, promulgated a policy including a prepayment plan for medical care, restricted to so-called "approved hospitals," to members of the staffs of such hospitals, and to physicians acceptable to such affairs; and

"Whereas, This action of the Board of Regents of the American College of Surgeons has been spread to the people of the United States through the public press on the opening day of the annual session of this House of Delegates; therefore, be it

"Resolved, That the House of Delegates of the American Medical Association express its condemnation of such tactics and of this apparent attempt of the Board of Regents of the American College of Surgeons to dominate and control the nature of medical practice; and be it further

"Resolved, That the House of Delegates request the Board of Trustees of the American Medical Association and the Judicial Council to ask the Board of Regents of the American College of Surgeons, who are themselves members of the American Medical Association, to explain the reasons for their action, and to justify the attempt by this small group within a specialistic organization to legislate for all the medical profession of this country, truly represented only by the American Medical Association."

This report was unanimously adopted.

#### PHYSICIANS ON STATE AND FEDERAL RELIEF COMMITTEES

Resolutions were adopted declaring that each state and federal relief committee should have a physician member, and that no schedule of fees for medical services to beneficiaries of federal relief funds should be approved by state committees without the approval of the state medical association concerned. These resolutions were submitted to the house by Dr. Ralph A. Fenton, of Oregon.

On recommendation of the Reference Committee on Hygiene and Public Health, resolutions were adopted concerning harmful radio broadcasting.

The House of Delegates, on recommendation of the Reference Committee on Legislation and Public Relations, adopted a resolution offered by Dr. George Blunner, Connecticut, concerning control of patients.

Dr. Henry C. Macatee, District of Columbia, presented resolutions protesting certain activities of government hospitals, which were referred to the Reference Committee on Legislation and Public Relations.

The Reference Committee reported as follows, and the report was adopted:

Concerning the resolutions presented by Henry C. Macatee on behalf of the Medical



Society of the District of Columbia: Your committee finds that the purport of the resolutions are in accord with the policies of the American Medical Association, and it is recommended that this House of Delegates regards it essentially unfair to the tax-paying public and the medical profession for the government, federal, state, or municipal, to extend free medical and hospital services to persons not legally entitled thereto.

#### AMENDMENT TO BY-LAWS PERTAINING TO FELLOWSHIP

The following proposal of the Judicial Council was approved:

"Resolved, That the By-Laws, Chapter XI, Section 2, be amended by adding, at the end of the section, 'In exceptional cases members holding a degree equal in requirements to that of M.D., but not graduated from a recognized school, who formerly were fellows or who have established a high standard of professional attainment, may be admitted as fellows by the Judicial Council, if in their judgment such action is desirable.'"

#### RESOLUTIONS FROM SECTIONS

An important resolution from the Section on Ophthalmology, defining grades of blindness, was adopted.

A second resolution originating with the Section on Ophthalmology disapproved the employment of optometrists by hospitals and urged the House of Delegates to "institute the necessary measures to stop this pernicious invasion of the practice of medicine." This resolution was adopted by the House of Delegates.

The house recorded its approval of the action of the Section on Nervous and Mental Diseases in adopting the following recommendations by a committee representing that section, the American Psychiatric Association, and the American Neurological Association:

1. That the Section on Nervous and Mental Diseases of the American Medical Association cooperate with the American Psychiatric Association and the American Neurological Association in the establishment

of the American Board of Psychiatry and Neurology.

2. That four members of the section, two neurologists and two psychiatrists, be elected to serve on the board for terms from one to four years; that each year hereafter a member be elected to take the place of the retiring member, neurology and psychiatry being always equally represented.

#### HOSPITAL STAFF MEMBERS

Dr. G. Henry Mundt, Illinois, presented the following resolution, which was referred to the Reference Committee on Medical Education:

"Resolved, That it is the opinion of the House of Delegates of the American Medical Association that physicians of the staffs of hospitals approved for intern training by the Council on Medical Education and Hospitals should be limited to members in good standing of their local county medical societies and that the House of Delegates request the Council on Medical Education and Hospitals to take this matter under advisement."

The Reference Committee recommended that this resolution be referred to the Council on Medical Education and Hospitals. After expressing its approval of the principle of the resolution, the Committee indicated a doubt that it would be advisable to undertake its general application. A motion, duly seconded, to the effect that the resolution as presented be adopted was carried.

#### PRACTICE OF RADIOLOGY BY UNLICENSED PERSONS

Resolutions pertaining to the practice of radiology by unlicensed persons submitted by Dr. G. M. Fisher, New York, were approved on recommendation of the Reference Committee on Education and Hospitals.

#### RESOLUTIONS AUTHORIZING JUDICIAL COUNCIL TO MAKE INVESTIGATIONS OF ETHICAL PRACTICES OF INSTITUTIONS

Dr. E. G. Wood, Tennessee, presented the following resolutions, which were referred to the Judicial Council.

"Whereas, The principles of the Code of Ethics of the American Medical Association enjoin institutions and organizations to observe the same principles as individual practitioners, and

"Whereas, It is of the most vital importance to the public and to the medical profession that the principles of the Code of Ethics be observed by institutions, organizations, and individuals, and

"Whereas, The Judicial Council of the American Medical Association has discretionary powers (conferred in Chapter IX, Section 1, of the By-Laws) to investigate practices in any community, but is without the machinery and finances necessary for such investigations; therefore be it

"Resolved, That the Judicial Council be directed to exercise its discretionary powers to make investigations of ethical practices on institutions, wherever in its opinion such investigations should be made. Be it further

"Resolved, That the Board of Trustees is requested to appropriate funds in such amounts as are necessary to enable the Judicial Council to set up and finance an organization for making such investigations, under rules and regulations prescribed by the Council. Be it further

"Resolved, That, in the event an institution is found to be engaging in practices which are unethical, the authorities of the institution shall first be so advised and given a reasonable time in which to alter its practices, and, in the event practices are not altered so as to conform to the principles of the Code of Ethics, the approval of such an institution shall be stricken from the lists of approved institutions by the American Medical Association. The state and local medical societies of the state in which such an institution is located shall be notified by the council of the action taken; also the action shall be published in the official publications of the American Medical Association."

REPORT OF THE REFERENCE COMMITTEE ON  
AMENDMENTS TO THE CONSTITUTION  
AND BY-LAWS

Dr. H. H. Shoulders, Chairman, presented the following report:

Concerning an amendment to the By-Laws regarding fellowship, introduced by Dr. George Edward Follansbee, Chairman of the Judicial Council, the preamble of the resolution sets out the reasons for the adoption of the amendment.

In the opinion of your committee, the adoption of this amendment will enable the Judicial Council to deal justly with applicants for fellowship. It will not admit to fellowship any one who does not deserve it. It will enable the council to admit some who deserve fellowship, but to whom that relationship is denied on technical grounds only.

Your committee recommended the adoption of the amendment.

Respectfully submitted,

H. H. SHOULDERS, *Chairman*.

Dr. Shoulders moved that the amendment to the By-Laws be adopted. The motion was seconded by Dr. J. Newton Hunsberger, Pennsylvania, and carried.

The House of Delegates considered and took action on a number of matters that are not included in this partial review of its proceedings.

OFFICERS AND MEMBERS OF COUNCIL

Dr. James G. McLester, Birmingham, was made president-elect; Dr. George G. Reinle, Oakland, Calif., was elected vice-president; Dr. F. C. Warnshuis, Grand Rapids, speaker; Dr. N. B. Van Etten, New York, vice speaker; Dr. Herman L. Kretschmer, Chicago, treasurer; Dr. Olin West, secretary. Dr. Allen H. Bunce, Atlanta, was elected to succeed himself as a member of the Board of Trustees, and Dr. Roger I. Lee, Boston, was elected to succeed Dr. D. Chester Brown. Dr. Brown's long service as member of the Board of Trustees was terminated by constitutional limitation. He was called before the house to receive an expression of appreciation of his loyal and efficient service.

President W. L. Bierring submitted the following nominations, all of which were confirmed by the house:

Member of Judicial Council: Emmett P. North, St. Louis.



Members of Council on Medical Education and Hospitals: Fred Moore, Des Moines; John H. Musser, New Orleans.

Members of Council on Scientific Assembly: Irwin Abell, Louisville; Cyrus C. Sturges, Ann Arbor.

#### NEXT ANNUAL SESSION IN ATLANTIC CITY

The next annual session will be held in Atlantic City, June 10-14, 1935. By official

action of the House of Delegates of the American Medical Association an invitation has been extended to the Canadian Medical Association to jointly participate in the scientific programs at the Atlantic City session. That invitation has been most graciously accepted. All of which means that the meeting to be held in Atlantic City next June should be the greatest of all convocations of the practitioners of medicine.

## THE PLACE OF THE MEDICAL SCHOOL IN ATTEMPTS TO AMELIORATE PRESENT CONDITIONS IN THE PRACTICE OF MEDICINE\*

O. W. HYMAN, Ph.D., Dean of University of Tennessee, College of Medicine, Memphis

SOME WEEKS ago the president of our society handed me a copy of the American Medical Association Bulletin and called my attention to an article by Dr. Walter L. Bierring entitled, "Social Dangers of an Oversupply of Physicians." Upon reading the article, I found the statement, "The responsibility to a large extent rests with the medical schools, for they hold in their hands the power to control the supply of physicians for the future. In the trades and handicrafts it has been the invariable practice sanctioned by years of tradition to limit the entry." Dr. Bierring is a man of eminence. His opinion deserves a respectful analysis.

First let us define our terms. What do we mean by an oversupply of physicians? Certainly we do not mean more physicians than are required to care for the medical needs of the country or community. No community has yet approximated a condition in which all of its population received anything like adequate medical care, and no one knows how many physicians would be needed under such circumstances. The best definition that I have been able to reach is that there is an oversupply of physicians when the amount of money that the people of a community are willing to spend for medical service is not sufficient to provide a satisfactory income for the physicians of the community. Without going too deeply into the matter, let us accept the definition of a satisfactory income as one which will place the physician and his family on the economic level of the well-to-do families of the community in which he lives.

Attempts have been made to state numerically a ratio between population and physicians which would generally result in a satisfactory income for the physician and the maintenance of satisfactory professional and ethical standards for the service

of the public. Dr. Bierring believes that a ratio of one physician to twelve hundred population would be generally satisfactory. Ten years ago American writers on this subject used one to a thousand as the desirable ratio. European writers use one to two thousand. How were these estimates reached? Apparently the desirable ratio is just comfortably beyond the condition that is likely to be achieved. It looks like each estimate has been developed through the emotions of the author rather than reached by a rational analysis.

Discussion of the oversupply of physicians has been stimulated sharply by the fact that in 1930 there were only 787 people in the United States for each physician, while in other civilized countries there were from 1,000 to 2,800. Let us analyze the American figures as they bear directly upon the region in which we are living. The ratio of population to physicians in each geographical subdivision of the United States in 1920 and in 1930 was as follows:

|                       | 1920 | 1930 |
|-----------------------|------|------|
| New England .....     | 685  | 700  |
| Middle Atlantic ..... | 721  | 702  |
| North Central .....   | 704  | 781  |
| South Atlantic .....  | 825  | 915  |
| South Central .....   | 794  | 976  |
| Mountain .....        | 694  | 825  |
| Pacific .....         | 572  | 616  |
| United States .....   | 720  | 787  |

The latest records available are for 1932. These are in such shape that it is quite laborious to get the ratios for that year. However, I have made the counts for the South Central states and find that in them the ratio rose to 992. This is approximately what was considered an ideal ratio ten years ago.

The first significant feature of these figures is that the ratio of people to physicians rose in every region except the Middle Atlantic (New York, Pennsylvania, and New Jersey), where it fell. Second, there now exists a higher concentration of physicians in the New England, Middle

\*Read before the Shelby County Medical Society, Memphis.



Atlantic, and Pacific states and a lower concentration in the South Atlantic, South Central, and Mountain states. The South Central states have the lowest concentration of all, and Memphis is almost in the center of this area. Looked at differently, there was an increase of 11,000 in the number of physicians during the decade. The Middle Atlantic states alone showed an increase of 6,500. The South Central states showed a decrease of 1,500 in spite of an increase of over 3,000,000 in population.

In spite of the highest concentration of physicians in the world, we graduated 4,895 new ones in 1933, which was approximately 1,800 more than were withdrawn from practice by death. Let us examine these 4,895 graduations in the light of the distribution of physicians shown above. The following table gives the number of graduates in each region and the ratio of population to graduates:

|                       | <i>Graduates</i> | <i>Population Ratio</i> |
|-----------------------|------------------|-------------------------|
| New England -----     | 375              | 22,000                  |
| Middle Atlantic ----- | 1,192            | 22,000                  |
| North Central -----   | 1,755            | 22,000                  |
| South Atlantic -----  | 681              | 23,000                  |
| South Central -----   | 618              | 36,000                  |
| Mountain -----        | 47               | 79,000                  |
| Pacific -----         | 227              | 36,000                  |

These analyses leave a pretty clear picture of an area in the South Central states in which physicians are relatively scarce and the production of new ones relatively slow and an area in the northeast from the Mississippi River to Massachusetts in which physicians are highly concentrated already and in which graduations are disproportionately numerous. I think that we may assume that this situation will tend to encourage a migration of physicians into the South Central states from those of the northeast. While accurate records are not available, casual observation indicates that this is occurring slowly. Is it better that the medical personnel of an area be derived from migration or from the training of those whose cultural ideals have roots in the area? New blood is invigorating. Trouble comes if the new blood does not mix well with the old.

Dr. Bierring states that the medical schools "hold in their hands the power to control the supply of physicians for the

future." This statement proceeds from the assumption that the medical school is autonomous. The idea must have its origin in the conditions of thirty years ago when most medical colleges were stock companies and were directly responsible to the will of their owners. At present, however, all our medical colleges are controlled by boards of trustees either directly or indirectly responsible to the public. In many cases, as in that of the University of Tennessee, they are direct representatives of the public. Obviously, the power to direct the policies of the medical schools is lodged with these trustees. They will be moved by what they conceive to be the public interest.

Dr. Bierring argues that to further increase the ratio of physicians will bring about such overcrowding as will result in lower professional and ethical standards to the great detriment of the public welfare. The same argument can be, and is, advanced by those who think that students should not be trained for law, engineering, teaching, farming. Shall the trustees therefore attempt to throttle down or prevent admission to all the professions and skilled trades? The thousands of young men now coming to maturity are ambitious to succeed and are entitled to free opportunity to develop their talents. If overcrowding were accepted as an adequate reason for denying training for any line of endeavor, then every possible door to a livelihood would be slammed in the face of the rising generation. It would be indefensible to deny to our sons the advantages that were offered freely to us.

It seems to me that attempts to correct our present difficulties by damming up the stream of new physicians is not likely to succeed. The publication of statistics intended to show overcrowding of the profession and consequent low incomes and other difficulties in reality serves to contrast the medical profession favorably with many other lines of work and make it seem attractive to still more men. Would it not be better to give more thought to the possibility of increasing the opportunities for medical service? In this direction, the med-

ical schools may be able to help to modify the present situation.

It has been suggested that certain medical services now rendered by public health forces should be rendered by physicians in private practice. As I understand it, the public health forces take the position that they are willing, provided the services actually are rendered and are offered on terms which the public will accept. It has been suggested also that laboratory diagnostic service now rendered by technicians should be done by physicians and that anesthesia should not be turned over to the nursing profession. These suggestions have been discussed repeatedly. I shall confine myself to remarks concerning two avenues, along which medical practice might be expanded enormously and in obvious conformity with the public welfare.

The first of these is in the realm of mental diseases. In spite of the fact that about half of all our hospital beds are provided for neurological or psychiatric patients, nearly all medical colleges are poorly equipped to teach these subjects. Consequently very few physicians can distinguish those cases which should be treated by a well-trained general practitioner, those which should be treated privately by a psychiatrist, and those which should be institutionalized. The tendency is to ignore mental cases or institutionalize them. While the amount of it is unknown, the damage to the public probably is extensive. If it were possible for medical schools to give instruction and practice in the diagnosis of mental diseases and to supplement the training of the physician by sound instruction in the general principles of psychotherapy, a great deal of additional medical service might be rendered the public.

We have planned to improve and expand our instruction in the field of psychiatry at the University of Tennessee. This will involve plans to assemble patients at some place where they may be available for study. It will also involve the necessity of securing additional personnel to help our present capable and loyal staff in carrying the increased teaching load.

We feel sure that should we be able to give our graduates sound training in the classification and treatment of mental diseases, the value to the public of those who engage in general practice would be increased substantially and a considerable number would find socially useful employment in the special field of psychiatry.

The second field into which the services of the physician might be expanded with the aid of the medical schools is that of physical therapy. There are said to be 36,000 persons holding themselves out to the public as competent to relieve disease by the use of various physical agents. It is estimated that the public pays them \$125,000,000 annually. Unfortunately for the public, these healers are generally poorly trained in diagnosis. This might be corrected by raising the standards for granting them license. There is, however, a more fundamental fault in the system now followed. These persons are limited by law to a single method of therapy. Obviously, self-interest will thus be added to ignorance in driving them to the use of physical therapy on every occasion and, indeed, afford a powerful incentive to downright dishonesty in both diagnosis and treatment. In the public interest, physical therapy should be a part of the armamentarium of the general practitioner. He would be free to use any type of therapy and would have little incentive to abuse in his choice of treatment.

At the present time, however, physicians generally are ignorant of both the theory and the technique of nearly all physiotherapeutic procedures. The public is thus placed in a serious dilemma. Those trained to make a diagnosis are unable to use the therapy. Those actually using the therapy are generally not trained in diagnosis and frequently are not trustworthy.

Should it be possible to add to the training of medical students sound and rational instruction and practice in physical therapy, another avenue of substantial public service would be opened for the physician. This cannot be achieved by a short talking course on the subject. It requires the establishment of a strong department in the hos-



pital with adequate personnel and equipment. More than that, it requires the cordial cooperation of other departments of the hospital.

In closing, permit me a few remarks that do not bear directly upon the oversupply of physicians. The medical profession and the medical schools face more than one serious problem at this time. The crowding of the profession is vexatious enough, but it is not as profoundly far-reaching as the increasing socialization of medicine. In thinking and in talking about these problems, we must keep clear certain important points. One point is that the problems will be settled by public opinion. If the practice of medicine continues to be a career which appeals to the public as desirable, no artificial impediments to entering the profession will be tolerated. If schemes to offer organized medical service through an intermediary, whether the state, an industrial organization, or an insurance company, appeal to the public, then the practice of medicine will become socialized. Let us then address ourselves to public opinion instead of to the opinion of the profession. Let us look at our problems from the point of view of the public's welfare. Let us think less and talk less about the troubles of

physicians and schools and more about the effect upon the public.

I should not like to be understood to recommend that we try to fool the public. On the contrary, what I urge is that we realize that the public welfare comes first: that we think it, believe it, and make our behavior conform to our beliefs. This is the idealism of medical practice as contrasted with a narrowly materialistic conception of it. The case for medicine is not covered when we calculate that \$100,000 has been invested in the preparation to practice and, unless an annual return of \$5,000 can be realized, the money were better invested in some other way. We must conceive of the practice of medicine as a way of living, one that can yield rich satisfaction in social service, in intellectual and emotional exercise and growth, and, incidentally, a comfortable income. We must make this our own ideal first. If we sincerely incorporate it into our thought, we shall exemplify it in our actions. The public may be persuaded that things as precious as health and life were better entrusted to such a profession than subjected to the hazards of impersonal merchandising methods, however economical they may seem.

## SURGERY OF THE BILE PASSAGES IN THE JAUNDICED PATIENT (WITH CASE REPORTS) \*

W. O. FLOYD, B.S., M.D., F.A.C.S., Nashville

**M**EDICAL MEN and especially surgeons have long been aware of the added dangers to successful surgery in the jaundiced patient. Jaundice is of significance in surgery first, because of the difficulties of differential diagnosis, and second, because the surgical risk in its presence is greatly increased.

Jaundice is usually classified as:

First, obstructive jaundice, which constitutes about three-fourths of all the cases, and is caused by the mechanical occlusion of the bile passages, by stone, stricture or neoplasm. The van den Bergh reaction is always an immediate direct. This group is of most interest to the surgeon.

Second, intrahepatic jaundice, produced by some change within the liver itself, such as infections, cirrhosis, yellow atrophy, cancer, systemic diseases, drugs and poisons. The van den Bergh test in this group may be either direct or indirect, or it may be diphasic. Surgical treatment is not indicated in this group of cases, which constitutes a little less than one-fourth of all jaundice cases.

Third, haemolytic jaundice, which gives the indirect or delayed van den Bergh reaction. It constitutes 6 to 8 per cent of the cases and includes the congenital and familial haemolytic jaundice, in which splenectomy is often performed with good results.

Primary or metastatic carcinoma constitutes nearly one-third of the cases of jaundice, about twenty per cent are due to stones and ten per cent to stricture in the benign cases. Hence, in making a diagnosis the conditions to be thought of in the order of their frequency are, intrahepatic jaundice, carcinoma, stones in the ducts, and stricture.

The two chief barriers to successful operative treatment are hepatic insufficiency and

hemorrhage, and the liability to either is most difficult to estimate. Besides these two complications, renal insufficiency is often associated with the hepatic derangement and should be considered.

The degree of hepatic injury produced by biliary obstruction cannot be measured by any functional test known to us. Dye tests are obscured by the presence of jaundice and biliary obstruction, and cannot be relied upon. The concentration of bile salts in the serum has been studied, but has not given additional information of value. The same may be said of studies of blood cholesterol, although further work on this subject is necessary before it can be completely dismissed from consideration. Hepatic insufficiency is the most serious complication in the jaundiced patient at the present time. It is best treated by repeated administration of glucose.

The danger of postoperative hemorrhage in the jaundiced patient has long been recognized and feared by the abdominal surgeon. The determination of the coagulation time of the blood is of importance, for delayed coagulation indicates the need for care to prevent this complication. Petechial or purpuric hemorrhages afford further danger signals. A prolonged coagulation time is not an absolute contraindication of surgical measures, and on the other hand, postoperative bleeding may occur in the jaundiced patient with a normal clotting time. I have seen such cases. There seems to be something in the blood of the jaundiced patient that, regardless of the coagulation time, and which we do not yet know anything about, that produces hemorrhage in these cases. In the absence of more satisfactory information however regarding the particular factors responsible for this phenomenon the determination of the coagulation time of the blood is the most satisfactory laboratory test available at the present time.

\*Read before the Nashville Academy of Medicine and Davidson County Medical Society December 4, 1934.



Experience has taught us the importance of adequate preoperative preparation in preventing postoperative hemorrhage in cases of jaundice. The beneficial results secured by intravenous injection of calcium chloride solution have been amply confirmed by surgical experience in general. In one of our cases of chronic pancreatitis with a deep jaundice of two months' duration, which was cured by a cholecystostomy, the coagulation time was brought down from fifteen to six minutes in five days of preoperative hospital treatment with this drug.

The interference in blood clotting has been thought to be due to some abnormality of the serum calcium, but this may not be correct, for Snell and Greene, and Gunther and Greenberg have not been able to demonstrate significant changes in either the total or diffusible calcium present in the serum in jaundice. However, injections of calcium chloride will not control the tendency to hemorrhage in all cases of jaundice. In such cases transfusions of blood must be relied upon to accomplish the desired result, and should be repeated if necessary. To date this is the most satisfactory treatment.

Besides the preoperative administration of calcium and glucose we feel it extremely important to ligate every possible available bleeding vessel at operation, regardless of how small it may be, and despite this care we have seen fatal hemorrhages occur in jaundiced patients, both before and since the advent of blood transfusions. An accurate diagnosis in these cases may be extremely difficult and at times impossible.

Differential diagnosis of intrahepatic or obstructive jaundice should be helpful and may be made primarily on the basis of an accurate history and a careful general examination. Laboratory tests alone cannot always be relied upon, although various tests have been proposed at one time or another as reliable guides to the differentiation of obstructive and intrahepatic jaundice. The van den Bergh being the most reliable one to date. Stones may be entirely silent (5 per cent of all cases), and colic-like pains may occur in cases of hepatitis or of carcinomatous obstruction to the common bile duct, either at the head of the pancreas

or by extension from primary cancer of the gall bladder. Age is not an entirely reliable criterion, for we may have, clinically, a typical acute hepatitis or catarrhal jaundice in the aged, when a stone is present, or carcinoma may be encountered in the comparative young, but is very rare in persons who are less than thirty-five years. The course of the jaundice, likewise, is not an entirely reliable guide, since it depends on the degree of biliary obstruction. Although intermittent jaundice is usually indicative of stones, we have seen it in association with pancreatitis, as in the case above mentioned, and in carcinoma of the head of the pancreas and with cirrhosis. Painless jaundice is strongly suggestive of malignancy, but we have seen a number of such cases cured by the removal of a stone from the common duct. Because of these difficulties a satisfactory clinical diagnosis may be impossible. In such cases surgical exploration of the biliary passages is advisable if the condition of the patient permits.

Where jaundice is the outstanding clinical symptom in hepatic disease, the determination of the serum bilirubin, its reaction to the van den Bergh test, and its fluctuations throughout the course of the disease are of great practical diagnostic value. Normally it appears in the blood in from .5 to 1 mg. in each 100 cc. It usually occurs in from 5 to 6 mg. in each 100 cc. before jaundice appears clinically.

The icteric index, normally 3 or 4, and usually a fair guide as to the intensity of the jaundice, may be of some value, although we have had cases successfully operated upon where the icteric index was extremely high, being 100 or more. In one case of pancreatitis of long standing, and relieved by drainage, it was 145.

Besides a case of jaundice due to stones in the common, hepatic and intrahepatic duct, I wish to report a case of jaundice due to stricture of the common duct, in which I created a biliary fistula and then transplanted the fistula into the duodenum.

Cases of successful transplantation of biliary fistulas into the stomach or duodenum have been reported by Williams, who was the first to perform this operation, Lahey,

Lilienthal, St. John, Masson, Roeder, and Walters. The total number of cases of transplantation of these fistulas, and reported in 1929, according to Walters, was twelve. Williams' patient, operated on in 1924, was living and well in 1929, five years later.

Walters reported that he had established external biliary fistulas and later transplanted them into the stomach or duodenum in five cases of complete stricture of the common and hepatic bile ducts, in which insufficient normal duct remained between the liver and the strictured portion to permit direct anastomosis to the duodenum or stomach. My case was of this nature. Walters had one death in his five cases due to hepatic insufficiency and hemorrhage.

In an article by Perl in the *Illinois Medical Journal* of May, 1933, on this subject, he reported a case and was able to find twenty-five cases reported in the literature. Lahey had reported eight cases with two deaths up to that time.

#### CASE No. 1

1. Empyema of Gall Bladder with Calculi. 2. Recurrent Cholecystitis. 3. Stones in Common, Hepatic and Intrahepatic Ducts.

Mrs. J. H. H., (referred by Dr. J. W. S. of Norene, Tenn.), very large and fleshy, aged 30, married, one child stillborn year previous. Entered the clinic on June 13, 1921, giving the following history:

Patient had typhoid at the age of sixteen, fourteen years previous, in bed six weeks; two months later began to have indigestion, such as gas on the stomach after meals, sour stomach, belching of food, etc., which kept up at times until eight years ago began to have attacks of upper abdominal colic, associated with nausea and vomiting. The colics began in the pit of the stomach and radiated to the right side and via the chest and into the back and under the right shoulder blade, often requiring morphia for relief, with soreness settling up under the right ribs. Patient was in bed with these spells from a few days to three weeks at a time, the hardest spell being three months previous with a continuous soreness in the

upper abdomen since that time with frequent light colics during the past three months—a symptom very suggestive of stone in the cystic duct. She had had many similar attacks during the past eight years though she had one interval of two years in which she was free from such attacks. Never any jaundice.

Patient had been up and down for the past few weeks with temperature normal at times and up to 103 at other times, but no chills.

Physical examination showed marked tenderness with much rigidity under right ribs and temperature 102. No definite mass could be made out owing to patient's large size.

Her Wassermann was negative, as were other physical examinations.

A diagnosis of an acute gall bladder was made and operation advised.

At operation two days later an enormously distended gall bladder was found practically buried in adhesions. Owing to temperature of 102, plus the difficulty of removal, it was decided to drain the gall bladder. Upon opening the gall bladder an empyema was found and the gall bladder contained three very large faceted stones with a smaller stone about the size of a large acorn in the cystic duct. The stones were removed and the gall bladder was drained and the patient made a nice recovery.

Following the cholecystostomy patient had complete relief for six years and then began to have other abdominal colics similar to spells she had had before the operation. She had had several attacks during the past two years previous to our seeing her the second time, which was on December 12, 1929, and had had continuous colics for the past six weeks without any jaundice. Cholecystitis was diagnosed and removal of the gall bladder was advised, this being done on the following day.

At operation the gall bladder was found to be several times its normal thickness and very large, but no stones were present. Owing to many dense adhesions the common duct could not be satisfactorily identified and the gall bladder was removed from



above downward. After its removal no stones could be palpated in the common duct. The raw surface in the cleft of the liver was so extensive following the removal of the large gall bladder that it could not be sutured together in the usual manner, and we had to use a large pack, left in situ to control the hemorrhage from the liver, the remaining viscera being protected from the gauze by a coffer dam of gutta-percha tissue. The patient again made a nice recovery from the operation. She was seen next on October 16, 1931, or about two years after the cholecystectomy and gave the following history:

She had had only three months' relief of symptoms from her last operation, when she began to have colics again, but the pain always began in the right lumbar region now rather than in the pit of the stomach, a symptom suggestive of right renal calculus, then radiated forward and up under right ribs with the soreness settling, as always, under the right ribs. She had much vomiting and pain frequently requiring morphia for relief; usually in bed one day to one week with these attacks. She also had much pain under right shoulder. Had attacks every few days for the past few weeks and had had twenty-five or thirty attacks during the past year and a half, but never any jaundice; pain had gotten so it nearly always came on four or five hours after meals. Had lost sixty pounds in past year. An X-ray of the right kidney was negative for stone.

A diagnosis this time was more difficult, it being most unusual for a patient to have stones in the common duct with so many attacks and yet never any jaundice. This diagnosis was made however, and patient was advised to have the third operation. This was refused and patient returned home, but came in again about a week later very deeply jaundiced. The diagnosis then was easy and operation accepted.

At operation the common duct was again difficult to identify, owing to dense adhesions, and in trying to get into the Foramen of Winslow a terrific hemorrhage was encountered, and I finally had to pack Morrison's pouch with a large abdominal pack to

control the bleeding. Working above my pack I finally located a very large common duct, which contained three large stones. It was opened and stones found and removed. A fourth large stone could be seen protruding from the intrahepatic duct, but could not be removed after prolonged effort with every available instrument, although the hepatic duct had been opened up to the under surface of the liver. Realizing that to leave this stone would mean sure failure to relieve the patient I decided to do a hepaticostomy, and with one finger of the left hand in the opening of the hepatic duct and the others under the inferior surface of the liver, the thumb grasping its superior surface, I had an assistant to pull the liver down by means of its round ligament, so I could incise its superior surface for some three inches in length, (see Fig. 1) down

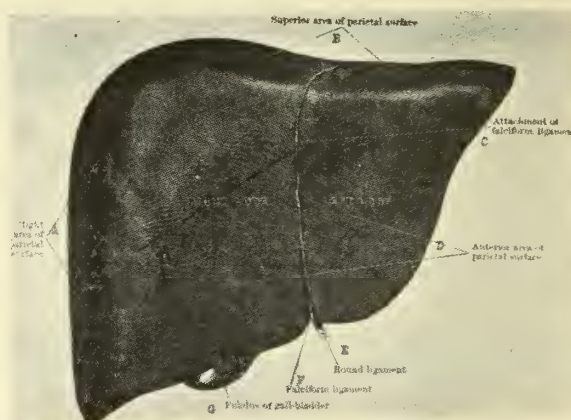


Fig. 1. Arrow pointing to dotted line, representing a three-inch incision in parietal surface of the liver down onto large stone in the intrahepatic duct in case I.

onto the stone, this incision being two or three inches in depth. Profuse hemorrhage occurred from this liver incision, but the stone was removed. Owing to the liver lying high up under the ribs, in a fleshy person, it was impossible to suture this incision in the superior surface of the liver, it being necessary to control the bleeding by a large pack over the liver, beneath the ribs and under the diaphragm, which pack was left in place. The common duct was drained with a catheter. The large pack, removed from Morrison's pouch, where it had controlled the hemorrhage in that re-

gion, was replaced by a smaller pack, and the abdomen closed.

Postoperative bleeding was considerable, and probably prolonged by the jaundice, but was finally controlled by transfusion and the patient recovered.

It has been a little over four years now since the last operation and the patient remained well when last heard from more than a year ago.

#### CASE NO. 2

Postoperative stricture of the common duct. Choledochoduodenostomy.

Mrs. E. H. H., (referred by Dr. J. P. R., of Clarksville, Tenn.), female, aged 62, the mother of several children, was seen on March 15, 1934, at which time she gave the following history:

She had been operated upon by Dr. Haggard for a cholecystitis in August of last year, at which time the gall bladder was removed. There were no stones in the gall bladder and there were no stones found in the common duct. Following the operation she vomited a good deal and her wound broke open on the eighteenth day after her operation and had to be reclosed. After returning home she continued to have spells of nausea and vomiting and soon noticed that she was getting jaundiced. These symptoms gradually increased and during the past four or five months she had had a great many chills, associated with a sudden rise in temperature, varying from 103 to 104. She had also had a number of chills previous to coming to the clinic, thought to be malaria, and controlled by her family physician with quinin, but her present chills were not influenced by quinin. She had had some pain or abdominal colic, associated with the vomiting, but her chief complaint was intense itching from the deep jaundice and almost constant nausea. She had lost twenty-five or thirty pounds in weight, owing to her inability to eat because of the great nausea. She was so deeply jaundiced that her skin was almost green, and most of her body was covered by a considerable rash, as a result of her continuous scratching. The van den Bergh test showed an immediate direct reaction. She had a

very large incisional hernia, as a result of her former operation, and, of course, was an extremely bad risk patient, as she had a myocarditis, as well as some nephritis. Despite her prolonged and deep jaundice her coagulation time was only  $3\frac{1}{2}$  minutes and her bleeding time only  $1\frac{1}{2}$  minutes. I made a diagnosis of stone in the common duct and operation was advised, and this was done two days later under rectal anesthesia. The adhesions were so dense that we had great difficulty in identifying the common duct structures and in attempting to separate the first portion of the duodenum from the under surface of the liver we accidentally tore into the duodenum, but this rent was repaired and the operation was continued. After finally getting into the Foramen of Winslow we were able to identify the main structures leading to and from the liver to the main abdominal blood vessels and to the duodenum, but after prolonged effort we were unable to identify the common duct. We finally divided the structures however, which enveloped the main blood vessels at this point, and identified what seemed to be the remnant of the common duct, especially where it entered the duodenum, but no bile could be obtained from these tissues on aspiration. We did obtain, however, blood on several aspirations, showing that we were in the main hepatic blood vessels and we had a great deal of trouble with hemorrhage, even from these needle punctures, as a result of the great ease with which these patients bleed, owing to the jaundice. This apparent remains of the common duct was traced up near the under surface of the liver and was there lost, but as best we could follow its probable route to the liver we continued to excise scar tissue until we finally encountered a great quantity of bile, as we incised what appeared to be actual marginal liver tissue. Several ounces of bile escaped and by enlarging this incision we were able to put a No. 18 French catheter into this opening into the liver. The opposite end of the common duct was ligated at its junction with the duodenum and dropped back, and this catheter was brought out through the abdominal wound for drainage.



The patient had been given three doses of calcium chloride intravenously, previous to the operation and this drug was kept up for several days after the operation. A cigarette drain was placed in Morrison's pouch to take care of any leakage of bile that might take place around the catheter, as it was impossible to purse string the catheter into the liver. Also a rubber tissue drain was placed in the region of the head of the pancreas, as we had encountered so much accidental hemorrhage from this region during our exploration, searching for the duct, and as we could not control this hemorrhage by suture we had to provide for it by drainage. The catheter was held in place by chromic catgut suture in the parietal peritoneum and the wound was closed. Hemorrhage was controlled by daily transfusions for the next three or four days. Bile drainage was profuse for the first two or three days, at the end of which time the jaundice showed some signs of improvement. At the end of two weeks the jaundice had so cleared and the patient had made such general improvement that it was decided to do a choledochoduodenostomy, and again using rectal anesthesia this was done on March 31, 1934.

Again our operation procedures were markedly interfered with owing to the dense adhesions which occurred following the previous drainage operation. The duodenum had become so fixed from previous adhesions that it was extremely difficult to get it over against the liver without some tension upon it, but it was even more difficult to get the pyloric end of the stomach against the liver in the region of the original opening of the common duct, so we decided to use the duodenum rather than the stomach for our anastomosis. There was no evidence of the previous rent that we had made in the duodenum. The catheter was removed from the hepatic duct and another sterile catheter was placed in this duct. The duodenum was sutured as best possible to the under surface of the liver beneath the catheter and a large opening was made into the duodenum and the free end of the catheter was placed in the duodenum (see Fig. 2) and the duodenum was sutured loosely to

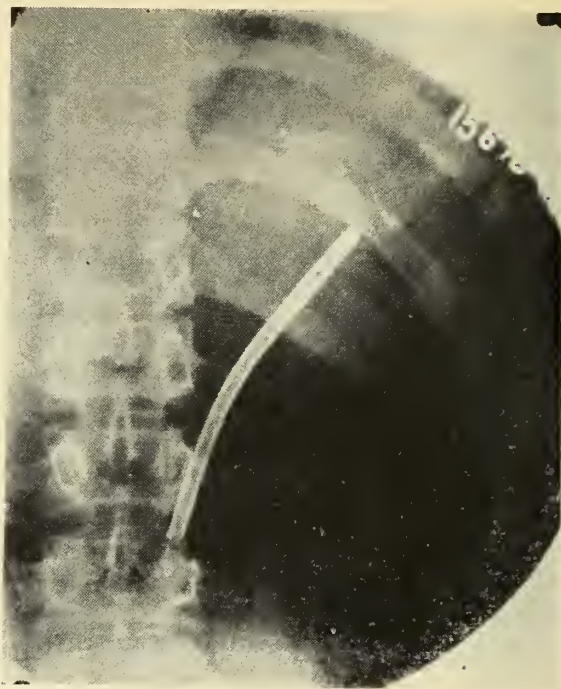


Fig. 2. X-ray after choledochoduodenostomy showing smooth end of catheter in hepatic duct and cut end in duodenum in case II.

the under surface of the liver around the catheter. The stitches could not be tied tightly, as they would cut out of the liver tissue, hence the anastomosis could not be made very snug, as we desired. The catheter was fastened in the duodenum however with a silk suture and we figured that this would be held in place until adhesions would take place sufficiently to prevent bile leakage in the general peritoneal cavity. A Penrose drain was placed in Morrison's pouch and away from our suture lines, to take care of any bile leakage. The original incisional hernia was repaired and the patient was maintained for several days with saline, glucose and blood transfusions. About the end of a week she suddenly began to have a good deal of bile drainage from the wound, probably due to the absorption of the catgut sutures, at which time the Penrose drain was removed and a small short rubber tube was placed through the abdominal wall. The biliary fistula continued to drain freely of bile for a few days with a gradual increase of pancreatic juice, with milk given by the mouth also occurring in this drainage. Naturally, the abdominal

wound became somewhat excoriated. In the meantime I felt that adhesions would soon take care of this leakage in the duodenum, owing to the fact that the opening in the duodenum was entirely within the peritoneal cavity and not on the abdominal surface. The wound was dressed with raw beef and the aluminum allurate powder to take care of the pancreatic juice, and the excoriation soon disappeared. By the end of a week the drainage had entirely ceased and the patient was able to take and keep

any light diet. She made a rapid recovery and left the hospital at the end of three weeks following her operation. An X-ray of the abdomen at this time showed the tube as having passed from the liver and in the left side of the abdomen, apparently in the small intestine. I have recently heard from the patient stating that she had remained completely well since her operation. Presumably the tube has been passed by bowel, although she did not mention that.



## WHAT SHALL WE DO ABOUT X-RAY NEGATIVE PULPLESS TOOTH?\*

A. J. COTTRELL, D.D.S., F.A.C.D., Knoxville

IT IS NOT the purpose of this paper to review the matter of oral or other focal infection as it may have a bearing on systemic disease. We do not propose to review the works of Rosenow or any other worker in the field of pathology.

It may be stated without question that any tooth with an apical abscess is a menace to health and with the exception of a few peculiar cases should be extracted.

The dictum went forth about fifteen years ago from certain sources that all pulpless teeth should be extracted. This was accepted by many practitioners without question. It had its origin in conclusions drawn from bacteriological and laboratory experiments alone, and investigations mainly by Rosenow.

There was at once started what was known as the 100 per cent movement—originating on the Pacific slope. The idea was intended as a movement to promote prophylaxis and educate the public to the importance of the early treatment of carious teeth and the prevention of the exposure or death of the pulp.

You know dentists are mostly mechanics—very few of us students, and in the minds of a great many of us the idea came that the 100 per cent movement meant to “pull out all the dead teeth.” Some of us are greatly interested in the largest fee possible—and you know the more teeth we pull the larger the job.

And with the belief that all pulpless teeth should be removed because talked about so much, by and large the students and younger dentists entering practice gave no further thought to the mastery of the process of pulp removal and the technique of treating and filling root canals. This is a matter that cannot be learned from books and can only be gained by long and tedious experimentation and experience. It

is a man's job for those who have mastered it. So here is another reason why the pulpless tooth is in such bad repute.

It may be that among people who take no care of their teeth, have no idea of their value, and consequently no knowledge of hygiene—“the submerged tenth”—who, in case of illness, find their way into the charity wards of hospitals, infection of dental origin may be a major factor in disease, but from my own observation and experience in the conduct of the ordinary practice such as mine has always been—people of fair means and intelligence—notwithstanding the talk and publicity the subject has received, as an etiological factor in systemic disease it must take its proper place as a minor factor.

Somehow most of us are prone to forget that, notwithstanding the wonderful and beneficent accomplishments of the science of bacteriology, the science is still in its infancy as is physiochemistry and even physiology.

From what I know of the flora of the mouth and the histology of the surrounding tissues of the teeth, I could not promise to deliver an uncontaminated extracted tooth to the laboratory to be cultured.

We know from the report of many research workers that the dentin and even the vital pulps of carious teeth yield bacteria. From many of the investigators in different parts of the country comes the report that many of the granulomas so frequently encountered are sterile. From some the statement that those having a circumscribed area as indicated in the radiograph by a distinct demarcation at the limit of radiolucent area are to be considered harmless.

I heard Dr. Rosenow say that the pulpless tooth, even though negative radiographically, is a potential source of focal infection. This statement I have heard repeated by every exodontist-diagnostician I ever heard speak on the subject. Following

\*Read before the Knox County Medical Society, December 11, 1934.

this statement to a logical conclusion would condemn all the vital teeth, because pulps are liable to die in them also, and along with them would go all the hair follicles, sebaceous and lymphatic glands, tonsils, gall bladders, etc., to say nothing of the hundreds of locations in the body where infection cannot be demonstrated.

The investigations and reports of those who have investigated the matter from the bacteriological standpoint are greatly contradictory. I heard the late Dr. C. Edmund Kills, of New Orleans, in discussing this question some five or six years ago say, "I will admit that you can put an infected tooth beneath the skin of a poor little rabbit and the rabbit will die, but what the hell has that to do with the practice of dentistry?"

Ten or fifteen years ago every patient of mine who went to Mayo's Clinic came back with all pulpless teeth removed. Within the last four or five years the injunction has been to "see your home dentist and let him determine the matter." The last one came back with the statement that it was found unnecessary to extract one that I had condemned.

When the fad of extraction came into being, at the very first experienced and eminent practitioners in every section of the country refused to concede that it was in harmony with clinical experience and refused to accept the extreme statements made by those who thought they had found the panacea for all ills.

In a recent article Dr. W. Clyde Davis, of Lincoln, Neb., who has given much study to this matter, and a practitioner of long experience says, "The indiscriminate extraction craze is about over, and those dentists who have not thrown away their canal instruments or forgotten their pulp canal technique will find their skill in increasing demand. One need but read the leading dental journals of the last two years to sense the trend at this time. With but few exceptions, too, the dental colleges are treating pulp canals by the hundreds and thousands by modern surgically clean methods."

I recently heard Dr. C. O. Simpson, of St. Louis, who is perhaps the most quoted writer and speaker on dental radiography and diagnosis in this country, in exhibiting some films in a lecture before the American Academy of Restorative Dentistry say, "There are those who say that such teeth as these and all pulpless teeth should be removed, but we know that is not sound," and passed on without further comment. Also, "You know I don't get along very well with the exodontists."

Dr. Harry B. Johnson, of Atlanta, said recently in speaking of root canal technique, "The Callahan method has stood the test of time in the hands of competent operators over a long period of years. It has also failed miserably in the hands of hundreds who have not thought it necessary to master the technique, and by careful thought and time-consuming experimentation acquire the skill and knowledge necessary in this or any other method of pulp canal filling. Fourteen thousand case records in my office show approximately 90 per cent success by this method." Dr. Johnson comes as near being a real authority in the matter as any one I know.

But the question is, what are *we* going to *do* about it? What is the wise course? The public is or has been under the impression that all human ills are directly attributable to the teeth. Thousands of good, serviceable teeth have been removed without noticeable benefit (also tonsils).

It cannot be determined radiographically nor bacteriologically so the only thing to do is to proceed plain logically.

Dr. Howard R. Raper stated the matter thus (and it had been my own procedure before I heard him state it), "In cases of systemic disease all teeth with apical infection should be removed, those that are pulpless, with well-filled root canals and negative in the X-ray, allowed to remain. If in the absence of improvement in the patient's physical condition and no other pathology discoverable then as a last resort remove the remaining pulpless teeth. In the last analysis the determination must be based on physical findings."



This is the only logical course I know of and the one followed by experienced and careful practitioners generally, and I think the one we should pursue right here at home regardless of how it is done in Chicago, Rochester, New York or Kalamazoo.

"What are a few teeth among friends anyway?" A great deal to the fellow who loses them unless he is benefited by it.

One thing certain you can always produce a strong psychological impression by pulling a few teeth, but what are you going to pull when the patient comes back?

The aforementioned plan of dealing with the negative pulpless tooth is the explanation of why those of you who have cooperated with me have found me in communication with you so frequently, and I

must confess that I am unable to handle these cases in what I consider an intelligent way without a reasonable statement as to the patient's physical condition.

I do not recall ever having any beneficial results from the extraction of negative pulpless teeth in any condition, and yet if it should develop in the experience of medical practitioners here at home that it is the wise course I should adopt it without hesitation in spite of the disappointing results in my own practice.

Of one thing I am convinced, that after twenty years of discussion we, the practitioners of medicine and dentistry, should soon arrive at some definite and uniform procedure in dealing with the "X-ray negative pulpless tooth."

**THE JOURNAL**

OF THE

**TENNESSEE STATE MEDICAL ASSOCIATION**Devoted to the Interests of the Medical Profession of Tennessee  
Office of Publication, 510 Doctors Bldg., Nashville, Tenn.*Acceptance for mailing at special rate of postage provided for  
in Section 1103, Act of October 3, 1917,  
authorized July 15, 1932.*

H. H. SHOULDERS, M.D., Editor and Secretary

MAY, 1935

**EDITORIAL****THE RECENT STATE MEETING**

There has been comment on all sides to the effect that the last meeting of the state society was one of the best meetings we have ever had.

We can say, from the standpoint of registration, it was one of the best. Five hundred nineteen doctors registered, and it is estimated that one hundred were in attendance who did not register.

There was a fine attendance on all the programs. Those who appeared on the program made worth-while contributions.

Our exhibitors were pleased.

The House of Delegates conducted its business in a businesslike way.

Some of our visitors from a distance made comments that they had never seen a state society meeting conducted quite so well.

The entertainment feature provided by the local committee on arrangements was enjoyed by all who attended.

The Noel Hotel management, insofar as we have been able to learn, did everything within their power to make guests feel at home.

Above all, there was evidence of a unity of thought and purpose on the part of doctors, and of equal importance there is evidence of a determination on the part of the medical profession to preserve those fundamental principles in practice which make us a profession.

**CREDIT WHERE CREDIT IS DUE**

The point has often been made on these editorial pages that the per capita costs of

public health work bear little relationship to the end results accomplished.

This truth has found verification in the fact that the County Health Department of Davidson County, headed by Dr. Johnnie Lentz, has achieved the distinction of winning honorable mention in a health conservation contest sponsored by the Chamber of Commerce of the United States.

The per capita cost of the Davidson County Health Department is about 47c.

There were one hundred and eight counties in the contest. Much larger sums of money were spent in most all of the counties in the contest.

There are many counties in Tennessee in which a much larger amount of money, in proportion to population, is spent than is the case in Davidson County.

It is a notable fact that Dr. Lentz spends a considerable portion of his time in an effort to achieve cooperation between his department and the profession of medicine in the community.

We take pleasure in recognizing this accomplishment on the part of Dr. Lentz and his Board of Health, and congratulate him and them.

Persons and policies have more to do with results than per capita costs. Too much money may bring a tragedy far worse than too little money.

**BUREAUCRACY**

There is a philosophy in medicine to the effect that "any agency which is potent for good is also potent for evil."

Morphine has the greatest possible potency for good. It is also, potent for evil. Ether and chloroform are potent for good. They are also potent for evil. Operations are potent for good. They, too, are potent for evil.

We doctors have become accustomed to weighing advantages against disadvantages. We are accustomed to weighing benefits and dangers. Such thinking is a part of our daily routine.

The accuracy with which this thinking is done is testified to by the safety with which treatments of all sorts are administered.

(Continued on page 204)





DR. JOHN B. STEELE

*President, Tennessee State Medical Association, Chattanooga*

## Our New President

John Black Steele was born in Pulaski, Giles County, Tennessee, July 29, 1884, the son of the late Walter Robert Steele and the late Mrs. Leacie May Black Steele. He is a grandson of the late Dr. J. C. Steele, who practiced medicine in Pulaski for fifty-two years, and who served as a surgeon in the Confederate Army, and is a nephew of the late Justice John I. Wilkes of the Tennessee State Supreme Court.

As a boy he attended public school in Pulaski and Columbia, Tennessee, and in Huntsville, Alabama. After graduating from The Webb School for Boys, he attended Vanderbilt University for two years, and then studied medicine at The University of Chattanooga, from which he graduated in 1905. He was a member of the football team both at Vanderbilt and at The University of Chattanooga, and is a member of Phi Kappa Psi fraternity.

Shortly after graduation he became assistant city physician of Chattanooga, serving for three years in this capacity under the venerable Dr. P. D. Sims. He was later city physician for four years. In 1911 he formed a partnership with Dr. Joseph W. Johnson and was one of the outstanding surgeons of Chattanooga until he entered the army in 1917. In 1919 he became medical director of The Volunteer State Life Insurance Company and has continued in this capacity until the present time.

He was married to Miss Bessie Newman McAnally of Huntsville, Alabama, in 1906. They have one daughter, Miss Bessie Steele.

As a young man Dr. Steele served an enlistment of four years in the Alabama National Guard, and was later a first lieutenant in the Tennessee National Guard for four years. When the United States entered the World War, he was a first lieutenant in the Medical Officers Reserve Corps and was at once ordered to Fort Riley, Kansas. After completing his course of instruction there, he was transferred to Camp Pike, Arkansas, and placed in command of an ambulance company. After two promotions he was sent overseas, in the spring of 1918, as a major, being attached to the 312th Engineers as regimental surgeon. He was later promoted to the rank of lieutenant-colonel and transferred to the First Division, and was discharged in June, 1919, as a lieutenant-colonel.

An enumeration of the various offices that he has held in some of the medical societies to which he belongs shows that he has long been an active and tireless worker for organized medicine. Those who know him more intimately can bear witness that in the Chattanooga and Hamilton County Medical Society and the Tennessee Medical Association no job has been too small or too large for him to undertake, and through the years he has not only been a tireless worker at all times but his advice has been sought and freely given on all matters of importance.

At the time he entered the army in 1917, he was vice-president of the Chattanooga and Hamilton County Medical Society. He was again vice-president of this organization in 1920, and was president in 1921. It was under his leadership that the movement to bring the Southern Medical Association to Chattanooga was successful, and he was chairman of the Committee on Arrangements for that meeting in 1922, and was vice-president of the Southern Medical Association in 1923. He has been an active member of the East Tennessee Medical Association for years, and is a member of the American Medical Association.

He has served as secretary and vice-president and was president of the Medical Section of the American Life Convention in 1926. In 1925 and again in 1926 he was a member of the Executive Committee of the Association of Life Insurance Medical Directors of America.

His activities have not been confined to the above medical organizations, but he has given much time and effort to furthering numerous projects of a civic and patriotic nature. He is a past commander of the Davis King Summers Post 14, American Legion, and a past president of the Reserve Officers Association of Chattanooga and of the Men's Service League of St. Paul's Episcopal Church.

Through all the years those who have known him best have recognized in John B. Steele the qualities of leadership. He is a tireless worker who seeks the advice of others frequently, and who always attempts to reconcile conflicting opinions, but who is not afraid to take a stand and assume the responsibilities of leadership when the occasion arises. Such qualities of leadership he brings to the presidency of the Tennessee State Medical Association, and these are the qualities of leadership which are needed to carry on the important work which has been inaugurated in the past few years and to meet the problems that will arise this coming year.—*Dr. F. B. B.*



We doctors have witnessed the development of genuine scientific development based on sound thinking. Each advancement has been guided by a high sense of prudence and caution.

Prudence and caution may hinder the rapidity with which some new process comes into general use. It also serves to make it safe. It makes progress safe. It hinders and finally prevents the use of the dangerous new process.

We doctors have witnessed the tremendous financial success made by the charlatan with his quack cure-all remedy. His business methods are carried out with cleverness. We have seen cancer cures come into vogue and vanish after a time. We have seen all sorts of cures come into vogue, and we doctors have endured the sting of criticism at times by some who have accused us of being too tardy and too conservative in adopting new discoveries.

When we doctors apply a new remedy, we do it with a far greater sense of responsibility than does the charlatan. We never lose our sense of responsibility. The moment we do we cease to be doctors.

We are not willing to submit our patients to hazards which we cannot appraise. We must be content to wait until a genuine experience, properly guarded, has taught us the proper appraisal. We observe the old philosophy: "Be not the first by whom the new is tried, nor yet the last to lay the old aside."

These philosophies, if we may call them such, are applicable to much that is going on today.

The last few years have witnessed the multiplication of governmental bureaus parading under various names with wild charlatan-like claims as to their virtues and benefits. Fortunately, experience is gradually teaching us that many of the wild claims made by propagandists are unwarranted in fact and are exploded by actual experience. However true this is, we now appear to be faced with another danger. The bureaucrat is never daunted. He always attributes failure to some phase or other, and on such an argument urges that

his bureau be enlarged and given more power. The time may soon arrive when we cannot abandon "bureaucracy," because the bureaus will have acquired a political power which cannot be overthrown.

It is an old truth that, once any bureau is created and financed, its primary object then is to increase its power, both political and financial, in order to prevent its destruction.

Recently in Tennessee it was announced by the chief executive that there was a deficit in the state treasury.

Just two years ago a bond issue bearing a high rate of interest was issued to take care of a treasury deficit. It must be mentioned that our children must pay these debts if they are ever paid. In fact, it comes to this—that our children must have a millstone of debt chained to their necks in the name of *some bureaucratic benefit*.

A recess committee worked diligently to bring about a balancing of the budget of the state without increasing taxes. It is common knowledge that, at the same time the committee was at work, various bureaus in the state were organizing their political forces to combat such economies and to compel an increase in taxation rather than a reduction in expenses.

The political effect of the efforts of the bureaucrats were demonstrated by the vote of the House of Representatives in which the appropriations for almost every bureau were increased. These developments serve to show that bureaus can be multiplied and financed and then organized to the point that their political power becomes overwhelming. When that day arrives our democracy has been destroyed. It will exist in name only. Then the public cannot weigh advantages against disadvantages, or at least the weighing will not matter, because the bureaucrat with his concoction of propaganda will overcome any influence the ordinary taxpayer can exert.

We doctors still apply these simple principles of weighing advantages against disadvantages, and as a result of such an analysis we hold to the view that the preservation of *democratic principles* in medicine is worth more to human welfare than all the

advantages claimed for all the bureaus by their wildest propaganda artists.

We are unwilling to see that time come when bureau heads assume the role of the old *feudal lords*.

Progress in human welfare made more advances in our democracy than in any other country on earth.

Insofar as medicine is concerned, we propose to stand by it to the last ditch, regardless of the wild, foolish claims of the charlatan, however intellectual and clever he may be in promoting his quack remedies in the name of human welfare.

---

#### JUST FOR INSTANCE

The following calculations serve to show some of the benefits which might be achieved with a different system of administering prophylactic agents to the indigent population of the state. The estimate here made as to the number of indigents is arbitrary, of course. There are no accurate figures on which to base a sound conclusion.

There are approximately fifty thousand living children born in the state each year. We will assume that fifty per cent are indigent. If the state were to pay to the doctors who attend the births of the twenty-five thousand indigent children the sum of three dollars for the administration of diphtheria toxoid before the infant is six months old, the cost to the state would amount to \$75,000 per year. The birth certificates would serve as the basis for a checkup.

A few of the benefits of such a plan might be enumerated as follows:

First, the infants would receive the treatment at a time when they actually need it.

Second, the doctor would keep in contact with the child.

Third, with fifty per cent of the infants immunized each year a diphtheria epidemic could never occur.

Fourth, the doctor would receive at least some remuneration.

The communities would be using the facilities at their very door. The doctors in rural communities would be encouraged at least to remain and to take a keener interest in the matter of prophylactic agents. A tremendous economy would be effected.

No such achievement as that above mentioned has ever been wrought in Tennessee by all the millions that have been spent.

The children of parents who are not indigent, of course, would pay their physician direct for the services.

By such a simple plan of using the record of birth as a means of follow up, a few clerks could check the matter of immunizations right along during the year.

Such a simple process might apply to all prophylactic agents, such as typhoid and smallpox.

The cost to the state would be small—much smaller than the amount that is spent today to accomplish much less in benefits. Such a plan would not cause the creation of political organizations throughout the state under the domination of a central head. The services to the indigent would be regarded as a public service rendered by the doctor who attended the births, for which the state assumes a small amount of financial responsibility. Such a plan has found favor and is employed in at least one locality in the United States.

---

#### A WELFARE OR A RACKET

Information is gradually coming to light to the effect that welfare movements in many localities have really degenerated into rackets. The leaders of these movements are being subjected to a little more scrutiny than was the case a while back. It was no trouble for a leader of any movement which bore the name of welfare to obtain a following which demanded an appropriation from public treasuries, provided he was clever with his propaganda.

It is gradually coming to light that some of the leaders in health movements in Tennessee draw the salary that the state appropriated and, in addition, received "honorariums" and fees from institutions and organizations even from outside the state.

In some states the commissioner of health has been subsidized by foundations, all of which is done in the name of WELFARE.

It is known also that some of these very foundations are interested in destroying our system of democratic government, and,



of course, the justification for such a change is found by the proponents of such movements in *human welfare*.

We doctors are primarily interested in human welfare. We have stood up and taken critical blows on the chin, so to speak. We have been charged with being mercenary and selfish. Such charges are easily made by those who draw state salaries and use large state appropriations in delivering some services. They have been passing as the unselfish guardians of the public interest. A few revelations show such people not to be unselfish, but to *possess selfishness* of the meanest sort.

When we finally get to the point that the public pays for the services rendered by the political appointees instead of borrowing the funds from the future, they will realize they had better services at their very door at less expense than some of the governmental benefits.

## DEATHS

Dr. Edward T. Kelty, Tiptonville; University of Nashville, Medical Department, 1900; aged 61; died March 30.

Dr. H. T. Collier, McKenzie; Tulane University Medical School, New Orleans, 1900; aged 60; died May 4, following a stroke of paralysis.

## RESOLUTIONS

Resolutions of Campbell County Medical Association upon the death of Dr. F. A. McClintock, March 28, 1935.

Whereas, Dr. F. A. McClintock, our beloved secretary and leader of our Campbell County Medical Society, has been called to his final reward.

We, the members of the Campbell County Medical Society, wish to express our gratitude for his loyal fellowship and ardent devotion to the profession that we are all interested in perpetuating.

We cannot express in words the sorrow we feel in losing Dr. McClintock. He has

been an example in living that will cause the Campbell County Medical Society members to fight for the integrity of our medical profession, ever keeping the memory of his life before us.

We wish to extend our sympathy to his bereaved family and friends.

(Signed)—Members of Campbell County Medical Society.

Approved by Campbell County Medical Society, March 28, 1935.

Dr. J. R. Bone, age 57, the last charter member of the Wilson County Medical Association, died at Lebanon, Tennessee, on March 28, 1935. He practiced his profession faithfully for twenty-seven years. He was a member of the Wilson County Medical Association, Tennessee State Medical Association, and the Upper Cumberland Medical Association.

The passing of Dr. Bone removes from our county and community one of its most eminent practitioners and deprives the medical profession of one of its most valued members. His many friends have every reason to mourn his loss and receive the sad news of his death with great sorrow. We who had the opportunity of knowing him intimately learned to love and admire him and were impressed with his standard as a man, his wisdom, kindness, sincerity, noble sentiments, and skill as a physician. He reflected hope, kindness, and good will to his many patients and friends. He was a devoted husband, father, friend, and always ready and willing to give helpful counsel and cooperation in his profession. We will miss his counsel and assistance and above all the example set as a conscientious physician. He has probably done more for our association than any other member.

In recognition of these noble attributes, the Wilson County Medical Association extends to the family and relatives of Dr. Bone its deep sympathy in their loss.

Be it therefore resolved that a copy of these resolutions be sent to the family, a copy to the Tennessee Medical JOURNAL, a copy to our local press, and that a copy be

(Continued on page 208)

## LIST OF OFFICERS OF THE TENNESSEE STATE MEDICAL ASSOCIATION

President—Dr. John B. Steele, Chattanooga.  
 Vice President for East Tennessee—Dr. C. R. Thomas, Chattanooga.  
 Vice President for Middle Tennessee—Dr. J. W. Wilkes, Columbia.  
 Vice President for West Tennessee—Dr. N. S. Walker, Dyersburg.  
 Secretary—Editor—Dr. H. H. Shoulders.  
 Assistant Secretary—Editor—Dr. W. M. Hardy.

## TRUSTEES

Chairman and Treasurer—Dr. C. M. Hamilton, Doctors Building, Nashville.  
 Dr. W. L. Williamson, 915 Madison Avenue, Memphis.  
 Dr. E. R. Zemp, Walnut Street, Knoxville.

## COUNCILORS

First District—Dr. L. E. Dyer, Greeneville.  
 Second District—Dr. S. R. Miller, Knoxville.  
 Third District—Dr. J. H. Revington, Chattanooga.

Fourth District—Dr. J. T. Moore, Algood.  
 Fifth District—Dr. John W. Sutton, Petersburg.  
 Sixth District—Dr. L. W. Edwards, Nashville.  
 Seventh District—Dr. C. D. Walton, Mt. Pleasant.  
 Eighth District—Dr. J. R. Thompson, Jackson.  
 Ninth District—Dr. E. H. Baird, Dyersburg.  
 Tenth District—Dr. W. B. Burns, Memphis.

Speaker of the House of Delegates—Dr. E. R. Zemp, Knoxville.

Delegates to the American Medical Association—

Dr. E. G. Wood, Knoxville; East Tennessee.  
 Dr. H. H. Shoulders, Nashville; Middle Tennessee.  
 Dr. H. B. Everett, Memphis; West Tennessee.

Alternates—

Dr. E. T. Newell, Chattanooga; East Tennessee.  
 Dr. J. O. Manier, Nashville; Middle Tennessee.  
 Dr. E. C. Ellett, Memphis; West Tennessee.

## OFFICERS OF COUNTY MEDICAL SOCIETIES FOR THE YEAR 1935

| COUNTY                                   | PRESIDENT                             | VICE PRESIDENT                                                                                             | SECRETARY-TREASURER              |
|------------------------------------------|---------------------------------------|------------------------------------------------------------------------------------------------------------|----------------------------------|
| Anderson                                 | Thomas Jennings, Clinton              | Edward Dickson, Coal Creek                                                                                 | J. S. Hall, Clinton              |
| Bedford                                  | W. T. Sharpe, Farmington              | Alfred Farrar, Shelbyville                                                                                 | W. H. Avery, Shelbyville         |
| Blount                                   | C. C. Vinsant, Maryville              | L. C. Olin, Maryville                                                                                      | H. A. Calloway, Maryville        |
| Bradley                                  | Vance H. Bell, Cleveland              | D. N. Arnold, Cleveland                                                                                    | Wm. A. Garrett, Cleveland        |
| Campbell                                 | A. L. Lawson, Elk Valley              | G. M. Rogers, LaFollette                                                                                   | F. J. Slemmons, Jellico          |
| Carroll                                  |                                       |                                                                                                            | J. H. Williams, McKenzie         |
| Carter                                   | E. T. Pearson, Elizabethton           | J. B. Shoun, Elizabethton                                                                                  | E. L. Caudell, Elizabethton      |
| Chester, Henderson,<br>Decatur           | C. H. Johnston, Lexington             |                                                                                                            | L. C. Smith, Henderson           |
| Cocke                                    | J. A. P. Shields, Hartford            |                                                                                                            | J. E. Hampton, Newport           |
| Cumberland                               | E. W. Mitchell, Crossville            |                                                                                                            | V. L. Lewis, Crossville          |
| Davidson                                 | W. G. Kennon, Nashville               | H. S. Shoulders, Nashville                                                                                 | J. P. Gilbert, Nashville         |
| Dickson                                  | L. F. Loggins, Charlotte              |                                                                                                            | R. P. Beasley, Dickson           |
| Dyer, Lake, and Crockett                 | E. H. Baird, Dyersburg                | P. E. Miller, Tigrett (Dyer)<br>R. C. Newkirk, Tiptonville (Lake)<br>J. O. McKinney, Friendship (Crockett) | C. L. Denton, Dyersburg          |
| Fayette and Hardeman                     | John Morris, Somerville               | L. D. McAuley, Oakland                                                                                     | A. Richards, Bolivar             |
| Fentress                                 |                                       |                                                                                                            | J. P. Sloan, Jamestown           |
| Franklin                                 | W. F. Smith, Decherd                  | A. P. Smith, Winchester                                                                                    | John P. Grisard, Winchester      |
| Gibson                                   | P. D. Jones, Milan                    | L. H. Montgomery, Trenton                                                                                  | F. L. Roberts, Trenton           |
| Giles                                    | Joe B. Wright, Lynnville              | R. E. Warren, Pulaski                                                                                      | T. F. Booth, Pulaski             |
| Greene                                   | L. E. Dyer, Greeneville               | M. A. Blanton, Mosheim                                                                                     | C. P. Fox, Jr., Greeneville      |
| Grundy                                   |                                       |                                                                                                            | U. B. Bowden, Pelham             |
| Hamblen                                  | P. L. Henderson, Morristown           | P. L. Brock, Morristown                                                                                    | J. F. Campbell, Morristown       |
| Hamilton                                 | James L. Bibb, Chattanooga            | D. N. Williams, Chattanooga                                                                                | W. J. Sheridan, Chattanooga      |
| Hardin, Lawrence, Lewis,<br>Perry, Wayne | G. N. Springer, Hohenwald             |                                                                                                            | C. C. Stockard, Lawrenceburg     |
| Haywood                                  | W. D. Poston, Brownsville             | A. H. Sorrelle, Brownsville                                                                                | Roy M. Lanier, Brownsville       |
| Henry                                    | A. F. Paschall, Puryear               | Elroy Scruggs, Paris                                                                                       | R. Graham Fish, Paris            |
| Hickman                                  | L. F. Pritchard, Only                 |                                                                                                            | W. K. Edwards, Centerville       |
| Humphreys                                |                                       |                                                                                                            | W. W. Slayden, Waverly           |
| Jackson                                  | J. D. Quarles, Whitleyville           | R. C. Gaw, Gainesboro                                                                                      | F. B. Clark, Gainesboro          |
| Knox                                     | Eugene Abercrombie, Knoxville         | W. F. Christenberry, Knoxville                                                                             | Jesse C. Hill, Knoxville         |
| Lauderdale                               | J. L. Dunnivant, Ripley               | T. E. Miller, Ripley                                                                                       | J. R. Lewis, Ripley              |
| Macon                                    | D. D. Howser, Lafayette               |                                                                                                            | J. Y. Freeman, Lafayette         |
| Madison                                  |                                       |                                                                                                            | S. M. Herron, Jackson            |
| Maury                                    | E. M. Ragsdale, Columbia              | D. B. Andrews, Columbia                                                                                    | C. D. Walton, Mt. Pleasant       |
| McMinn                                   | R. W. Epperson, Athens                | S. B. McClary, Sr., Etowah                                                                                 | L. A. Brendle, Englewood         |
| McNairy                                  | John R. Smith, Selmer                 | G. B. Curry, Selmer                                                                                        | H. C. Sanders, Selmer            |
| Monroe                                   | T. M. Roberts, Sweetwater             |                                                                                                            | W. J. Cameron, Sweetwater        |
| Montgomery                               |                                       |                                                                                                            | Paul E. Wilson, Clarksville      |
| Overton                                  |                                       |                                                                                                            | A. B. Qualls, Livingston         |
| Polk                                     | H. P. Hyde, Copperhill                | W. Y. Gilliam, Copperhill                                                                                  | F. O. Geisler, Isabella          |
| Putnam                                   | Z. L. Shipley, Cookeville             | J. Fred Terry, Cookeville                                                                                  | Thurman Shipley, Cookeville      |
| Roane                                    | L. A. Killefer, Harriman              | R. F. Register, Rockwood                                                                                   | W. W. Hill, Harriman             |
| Robertson                                | W. Foster Fyke, Springfield           |                                                                                                            | W. S. Rude, Ridgetop             |
| Rutherford                               | J. D. Hall, Readyville                |                                                                                                            | J. A. Scott, Murfreesboro        |
| Scott                                    |                                       |                                                                                                            | D. M. Woodward, Winona           |
| Sevier                                   | O. H. Yarberry, Sevierville           |                                                                                                            | C. P. Wilson, Sevierville        |
| Shelby                                   | Jas. B. Stanford, Memphis             | R. G. Henderson, Memphis                                                                                   | A. F. Cooper, Memphis, Secretary |
| Smith                                    | R. F. Mason, Memphis, President-Elect |                                                                                                            | J. J. Hobson, Memphis, Treasurer |
| Sullivan and Johnson                     | R. E. Key, Monroville                 | Rhea E. Garrett, Dixon Springs                                                                             | Thayer S. Wilson, Gordonsville   |
|                                          | W. R. Rogers, Bristol, Va.            | L. C. Cox, Kingsport (Sullivan)                                                                            | Arthur Hooks, Bristol, Tenn.     |
|                                          |                                       | J. C. Hutchinson, Crandall (Johnson)                                                                       |                                  |
| Sumner                                   | J. J. Gwin, Hartsville                | R. N. Buchanan, Hendersonville                                                                             | Homer Reese, Gallatin            |
| Tipton                                   | A. J. Butler, Covington               | J. J. Fleming, Atoka                                                                                       | H. C. Currie, Covington          |
| Warren                                   |                                       |                                                                                                            | John S. Harris, McMinnville      |
| Washington                               | J. W. Wallace, Johnson City           | E. T. Brading, Johnson City                                                                                | Carroll H. Long, Johnson City    |
| Weakley                                  | R. W. Brandon, Martin                 | H. G. Edmonson, Martin                                                                                     | P. W. Wilson, Dresden            |
| White                                    | S. E. Gaines, Sparta                  | Vernon Hutton, Ravenscroft                                                                                 | A. F. Richards, Sparta           |
| Williamson                               | T. C. Rice, Franklin                  | R. H. Hutchison, Franklin                                                                                  | K. S. Howlett, Sr., Franklin     |
| Wilson                                   | J. L. Ames, Lebanon                   | C. C. Young, Alexandria                                                                                    | S. B. McFarland, Lebanon         |



## STANDING COMMITTEES

### COMMITTEE ON SCIENTIFIC WORK

H. H. Shoulders, Chairman, Nashville  
A. F. Cooper, Memphis  
W. J. Sheridan, Chattanooga  
Jesse C. Hill, Knoxville

### COMMITTEE ON PUBLIC POLICY AND LEGISLATION

L. W. Edwards, Chairman, Nashville  
T. R. Ray, Shelbyville  
Robert Sullivan, Nashville  
Battle Malone, Memphis  
Tom R. Barry, Knoxville  
J. O. Manier, ex officio, Nashville  
H. H. Shoulders, ex officio, Nashville

### COMMITTEE ON MEDICAL EDUCATION

O. S. Warr, Chairman, Memphis  
W. H. Witt, Nashville  
Franklin Bogart, Chattanooga  
Oliver Hill, Knoxville

### ADVISORY COMMITTEE TO THE WOMAN'S AUXILIARY

B. F. Byrd, Chairman, Nashville  
Percy Wood, Memphis  
Eugene Abercrombie, Knoxville

### LIAISON COMMITTEE

Hiram A. Laws, Chattanooga (five years)  
Tom Mitchell, Memphis (four years)  
J. L. Raulston, Knoxville (three years)  
W. C. Dixon, Chairman, Nashville (two years)  
W. P. Wood, Knoxville (one year)

### STATE TUBERCULOSIS HOSPITAL COMMISSION

W. S. Rude, Chairman, Ridgetop  
O. N. Bryan, Nashville  
H. R. Townsend, Oakville  
James L. Hamilton, Chattanooga

### HOSPITAL COMMITTEE

Lee Gibson, Chairman, Johnson City  
D. R. Pickens, Nashville  
E. H. Baird, Dyersburg  
E. Dunbar Newell, Chattanooga  
Kyle C. Copenhaver, Knoxville  
W. K. Edwards, Centerville  
J. A. McIntosh, Memphis

### CANCER COMMITTEE

Ralph H. Monger, Chairman, Knoxville  
A. M. Patterson, Chattanooga  
J. A. Crisler, Jr., Memphis  
James W. McClaran, Jackson  
Howard King, Nashville  
E. T. West, Johnson City  
J. A. McCulloch, Maryville

spread on the minutes of the Wilson County Medical Association.

DR. J. L. AMES, *President*.

DR. S. B. MCFARLAND, *Secretary-Treasurer*.

Dr. J. L. Davis, age 68, one of Wilson County Medical Association's most loyal members, died at his home in Watertown, Tennessee, February 23, 1935.

Dr. Davis was a graduate of Vanderbilt University Medical Department, Class of 1893.

He was a leader in religious and social life. He was temperate in all things. He was a devoted husband, father, and friend. He was a wise, kind, and affectionate physician, and strove to magnify the medical profession, and reflect hope, cheer, and gladness to all. He enjoyed a wide practice, and had a host of friends who will miss him. He had a wide family connection over the county.

The passing of Dr. Davis removes from Watertown and community one of its best citizens, a high-class gentleman, and a successful physician. By his death the Wilson County Medical Association has lost a true-and-tried friend and helper.

In recognition of his noble character and these great attributes, the Wilson County Medical Association extends to the family and relatives of Dr. Davis its deep sympathy in their loss.

Therefore, be it resolved that a copy of these resolutions be sent to the family, a copy to the Tennessee State Medical JOURNAL, a copy to our local press, and that a copy be spread on the minutes of the Wilson County Medical Association.

DR. J. L. AMES, *President*.

DR. S. B. MCFARLAND, *Secretary-Treasurer*.

## WOMAN'S AUXILIARY

President-----Mrs. R. G. Reaves  
Knoxville

President-Elect-----Mrs. Theodore Morford  
Nashville

Press and Publicity-----Mrs. W. O. Floyd  
Nashville



MRS. R. G. REAVES

*President, Woman's Auxiliary to the Tennessee State Medical Association, Knoxville*

#### WELCOME TO OUR NEW PRESIDENT

The auxiliary takes pleasure in extending greetings to its new president, Mrs. R. G. Reaves; in pledging the loyal support of each member; and in wishing her joy and success in her work for this year. The reports at the convention showed four new counties organized into auxiliaries—Blount, Monroe, and Anderson Counties—due to the splendid work of Mrs. W. N. Nash and Mrs. W. W. Potter, of Knoxville; and Rutherford County, under the guidance of Mrs. T. G. Pollard, of Nashville. What a splendid welcome that makes for our new president! With such a capable leader as Mrs. Reaves, and with so many new members sharing our interests, we are sure to have a banner year for 1935-36.

The plans for the convention, due to the able work of the committee on arrangements, were carried out according to the program, as announced last month. The attendance was unusually large at every meeting and party. Mrs. Willis Campbell

presided over the preconvention board meeting, and over the large group attending the eighth annual session, with her customary charm and ability, giving a tone of delightful informality to each occasion. The reports reflected the deep interest in auxiliary work throughout the state.

Dr. H. H. Shoulders, editor of the JOURNAL of the Tennessee State Medical Society, spoke at the meeting, forcefully and convincingly making clear the position which the auxiliary should assume in regard to socialized medicine.

On Tuesday evening, April 9, Mrs. Campbell entertained her board with a beautifully appointed dinner at the Centennial Club. Following that, the hostess auxiliary, of which Mrs. B. F. Byrd serves as president, entertained the guests with a musical program, arranged by Mrs. Fowler Hollabaugh, who presented the group of well-known artists. On Wednesday a luncheon at Belle Meade Country Club followed the hard work of the morning's meeting. After driving through dogwood-covered Percy Warner Park, on Wednesday afternoon, the auxiliary members met together at the Hermitage Hotel for their annual banquet. A trio composed of Mrs. Carl McMurray, Mrs. Harvill Hite, and Mrs. Joseph Travenick furnished music during the dinner hour.

Congratulations went to Knox County for having the greatest increase in membership during the year, Mrs. H. E. Christenberry proudly accepting the cup which her group had earned. Congratulations also went to Knox County for claiming as its member such a splendid person as our new president, Mrs. Reaves. Congratulations to the other officers were also presented at the banquet. The next morning Mrs. Reaves began her year's work with a rousing postconvention board meeting—a good omen for a good year.

Enthusiastic applause greeted the following slate of new officers:

President.....Mrs. R. G. Reaves  
 President-Elect...Mrs. Theodore Morford  
 First Vice-President...Mrs. W. T. Black  
 Second Vice-President..Mrs. T. G. Pollard  
 Third Vice-President...Mrs. Carl Martin  
 Fourth Vice-President..Mrs. P. W. Toombs



## Corresponding Secretary

.....Mrs. W. A. Shelton  
 Recording Secretary....Mrs. W. T. Braun  
 Treasurer.....Mrs. W. C. Bilbro, Jr.  
 Historian.....Mrs. B. F. Byrd

*Directors*

East Tennessee—Mrs. W. E. Foree, Mrs.  
 R. C. Kimbrough.  
 Middle Tennessee—Mrs. W. R. Cate, Mrs.  
 Y. W. Haley.  
 West Tennessee — Mrs. Willis Campbell,  
 Mrs. D. H. James.

## IN MEMORIAM

Be it Resolved, That the members of the Woman's Auxiliary to the Tennessee State Medical Association at this time recognize the death, on August 26, 1934, of A. Maria Crawford Luttrell, a charter member of the Woman's Auxiliary to Knox County Medical Society. In the loss of this friend we realize that we are deprived of one of Tennessee's most accomplished women.

Mrs. Luttrell's interests were universal. Her beautiful and inspiring thoughts she has left for us permanently in her poems, that we may have some tangible influence of her life. We realize how sorely we, as an organization, are hurt by the demise of this coworker and friend.

Be it Resolved, That this resolution be incorporated in the minutes of this meeting, and that a copy of same be sent to the family of A. Maria Crawford Luttrell.

**NEWS NOTES AND COMMENTS**

Dr. H. S. Shoulders announces the installation of a deep therapy X-ray machine in his offices at 246 Doctors Building, Nashville.

The Nashville Surgical Supply Company cooperated and aided us in securing the following advertisers, whose products they distribute, in our special April convention issue: Clay-Adams Company, Commercial Solvents Company, Davis & Geck, Gilliland Laboratories, National Electric Instrument

Company, Scanlan Laboratories, Winthrop Chemical Company.

We submit the following to doctors who are not satisfied with their present systems of presenting statements and writing "collection letters." The original bears a stamp, cancelled by a portion of the doctor's signature. We might add that a guinea is (or was) about five dollars in American money:

"3 Inverleith Place,  
 Edinburgh

September 13, 1923.

"Mr. J. J. M. Shaw F.R.C.S. presents his compliments to Mrs. Wallace and begs to intimate that his fees for Professional Services amount to Forty Guineas."

"Received payment, 9-19-23.

"J. J. M. SHAW.

"With Mr. Shaw's compliments and thanks."

## JANE TODD CRAWFORD MEMORIAL SERVICE

The Kentucky State Medical Society will dedicate this memorial at Danville, at 2 P.M., May 30. The speakers will be Dr. Stewart Roberts, of Atlanta; Dr. Morris Fishbein, of Chicago; Mrs. A. T. McCormick, of Louisville, and the Hon. Basil Richardson of the Supreme Court of Kentucky. Greensburg, Harlan and Glasgow girls will unveil the memorial. After the ceremony the old McDowell home will be open for inspection. Dr. C. C. Howard, President of the Kentucky State Medical Society, sends a cordial invitation for all Tennessee doctors to be present.

The program of the postgraduate course given under the auspices of The Nashville Postgraduate Medical Association has been issued. The date is June 3-8, inclusive. Sessions will be held at the Nashville General Hospital each day. Only a limited number of physicians can be accommodated. Further information and application can be obtained by addressing Dr. J. C. Pennington, Secretary, 726 Bennie-Dillon Building.

## MEDICAL SOCIETIES

### *Blount County:*

May 16—"Problems in the Therapy of Cough," by Dr. W. C. Crowder. Discussion to be opened by Dr. E. W. Griffin.

May 23—"Undiscovered Syphilis," by Dr. O. F. Agee. Discussion to be opened by Dr. E. H. Lowe.

May 30—"Consideration of Commoner Infections of Cervix Uteri," by Dr. W. N. Lynn, of Knoxville.

June 6—"Progress in Study of Evolution," by Dr. J. M. Waters. Discussion to be opened by Dr. W. B. Lovingood.

June 13—"Trachoma and Its Treatment," by Dr. G. W. Burchfield. Discussion to be opened by Dr. K. A. Bryant.

### *Davidson County:*

April 16—"The Treatment of Intractable Pain," by Dr. Cobb Pilcher. Discussion opened by Dr. T. D. McKinney.

April 23—"Mental Aspects of Hyperthyroidism," by Dr. F. H. Lutton. Discussion opened by Dr. J. B. Youman.

April 30—"X-ray Treatment of Inflammatory Lesions, including Sinus Conditions," by Dr. E. E. Brown. Discussion opened by Drs. C. M. Hamilton and Eugene Orr.

May 7—"House Dust in Allergic Conditions," by Dr. Herman Spitz. Discussion opened by Drs. Edna Pennington and Horton Casparis.

### *Dyer, Lake, and Crockett Counties:*

Dyer, Lake, and Crockett County Medical Society met in regular session April 3, 1935.

Resolution was adopted that the society sustained a great loss in the death of Dr. Edward T. Kelty, Tiptonville, Tennessee, who died March 30, 1935. The society joins those he faithfully served in extending sympathy to the bereaved family.

Announcements were made and plans were discussed for the West Tennessee Medical Society, which will be held in Dyersburg, Thursday, May 16.

Because of the West Tennessee meeting it was decided best to omit the regular May

meeting of the Dyer, Lake, and Crockett County society.

### Scientific Program:

1. "Malaria" Motion Pictures, Winthrop Chemical Company.

2. "Complete Thyroidectomy in Angina Pectoris and Congestive Heart Failure," Dr. J. G. Price, Dyersburg.

3. "The Patient's Personality and Its Influence on Subjective Symptoms," Dr. O. A. Schmidt, Memphis.

Twenty-seven members were present. A very good meeting.

C. L. DENTON, *Secretary*.

### *Hamilton County:*

May 16—"Migraine—Its Treatment," by Dr. C. R. Thomas. "Important Surgical Considerations of the Stomach," by Dr. W. D. L. Record.

May 23—"Tumors of the Kidney," by Dr. Jos. B. Killebrew. "Abdominal Tumors in Children," by Dr. Wm. D. Anderson.

May 30—"Uterine Hemorrhage," by Dr. E. Dunbar Newell.

June 6—"Psychology of Crime," by Dr. J. H. Barnett. "Abdominal Adhesions," by Dr. J. A. Steward.

### *Hardin, Lawrence, Lewis, Perry, and Wayne Counties:*

The Five-County Medical Society met in regular session at Linden, Tennessee, April 30, with a very good attendance. The following papers were presented:

"Heat Stroke and Heat Exhaustion," by Dr. W. E. Boyce, Flat Woods.

"Treatment of Toxemia of Pregnancy," by Dr. C. V. Stephenson, Centerville.

The papers were very liberally discussed by all. The next meeting will be held at Waynesboro last Tuesday in May.

(Signed) C. C. STOCKARD,  
*Secretary-Treasurer*.

### *Henry County:*

At a meeting of the society held April 30, Dr. A. A. Oliver made a report on the state convention held recently at Nashville. Routine business was also transacted at the gathering, which was presided over by Dr. A. F. Paschall, President.



A paper on "Spinal Anesthesia," by Dr. Barton McSwain, Paris, will be read at the next regular monthly meeting.

*Knox County:*

April 2—"The Doctor's Money and Investments," by Dr. R. M. Young. Drs. Luttrell, S. R. Miller, Oliver Hill, and E. R. Zemp led the discussion.

April 23—"Foot Strain," by Dr. Troy Bagwell. Discussed by Drs. Robert Patterson, Jarrell Penn, and R. G. Waterhouse.

April 30—"The Disturbances of the Labyrinth Causing Vertigo and Nausea," by Dr. R. G. Reaves. Discussion led by Drs. Long, Reese, Patterson, Dail, Letellier, and R. B. Wood.

Dr. L. C. Gatewood, of Chicago, visited the society very recently and read a paper on "The Medical Treatment of Peptic Ulcer—Dangers and Safeguards in the Alkali Treatment and Evaluation of Other Forms of Treatment."

*Warren County:*

The Warren County Medical Society, after a few years of inactivity, is now meeting regularly the first Friday evening of each month, and has the spirit of cooperation. Dr. E. L. Mooneyham, Rock Island, is president, and Dr. John S. Harris, McMinville, is secretary-treasurer.

(Signed) JOHN S. HARRIS.

*White County:*

The White County Medical Society met in Dr. Richards' office, April 18, with nine members present, and a good meeting was had.

Dr. R. E. Lee Smith read a well-prepared paper on "Mental Hygiene," which called out a good discussion.

A report of the state meeting from one of the delegates was listened to with considerable interest.

The query box was then opened, and, as usual, an interesting discussion followed.

The program for May will consist of a paper by Dr. W. M. Johnson, subject not stated.

The White County society is in good working order and having a good regular attendance.

Next regular meeting will be May 9. You are invited to come up and visit us when you can do so.

DR. S. E. GAINES, *President.*

A. F. RICHARDS, *Secretary.*

## OTHER MEDICAL SOCIETIES

VANDERBILT UNIVERSITY MEDICAL SOCIETY  
April 5, 1935.

### 1. Case Reports:

(a) "Case of Sulphhemoglobinemia." Dr. Albert Weinstein.

A case of sulphhemoglobinemia is reported in a colored male of 48, who took two to four Stanback headache powders each day for the relief of headache for the past five years. This is a proprietary preparation, each tablet of which contains two and one-half grains of acetanilid. The findings were classical of this condition—namely, a lavender cyanosis limited to the face, headache, nervousness, constipation, and the finding of a sulphhemoglobin absorption band when the blood was examined spectroscopically. Treatment consists of the removal of the offending aniline dye derivative and purgation. The response is satisfactory, but the result is quite slow in becoming evident.

Case discussed by Drs. Mason, Burwell, and Garrey.

(b) "Case of Tumor of the Lung." Dr. James A. Kirtley, Jr.

A white girl of five years entered the hospital with an illness of six weeks' duration suggesting a left postpneumonic empyema. The physical signs were those of fluid displacing the heart to the right. X-ray findings supported clinical findings. Repeated aspirations yielded only bloody fluid. Dyspnea and cyanosis increased. At operation large masses of soft, friable tumor tissue were removed followed by improvement. Microscopically, the tumor was composed of immature striated muscle cells with bundles of fibrils, areas suggesting immature cartilage, groups of cells resembling thymic corpuscles, and cysts lined with ciliated epithelial cells, and was diagnosed as a mixed tumor of mediastinums (usually classified as a teratoma).

Case discussed by Drs. Blalock and Casparis.

2. "The Development of a New Therapeutic Agent, Illustrated by Experimental Studies of Ascaricides." Dr. Paul D. Lamson, Dr. Roger W. Stoughton, and Mr. Allan Bass.

The ascaricidal properties of a series of some 250 alkyl phenols were reported. Most of these substances were synthesized with the object of determining the effect of introducing different types of side chains into the phenol molecule in different positions. Among these substances a considerable group of active compounds was found having the common properties of melting points below 75 degrees C. and a solubility range of between 1:1,000 and 1:30,000. A few alkyl phenols were found by trial in the field to have marked activity against ascaris, hookworm, and trichuris.

Paper discussed by Drs. Meleney and Stoughton.

3. "Studies on the Urinary Excretion of Vitamin C." Dr. John B. Youmans, Dr. Marvin B. Corlette, Mr. J. H. Akeroyd, Jr., and Miss Helen Frank.

Eleven of a group of fourteen clinic patients excreted less than 20 mg. of vitamin C daily, while eight of sixteen normal subjects had excretions above this level. With large test doses of vitamin C the patients excreted from 2 to 35 per cent in twenty-four hours, the normal subjects from 2 to 97 per cent. One subject reached complete saturation in four days when taking large doses of orange juice, after which his excretion fell off sharply.

Paper discussed by Drs. Burwell, Robinson, Garrey, Casparis, and Youmans.

## ABSTRACTS OF CURRENT LITERATURE

### ANESTHESIA

By HUGH BARR, M.D.  
Medical Arts Building, Nashville

Anesthesia in Surgery of the Chest. Dorothy A. Wood, M.D. California and Western Medicine, December, 1934.

In chest surgery, the position of the patient on the operating table presents a problem, as he has

to lie on the unaffected side, compressing the good lung, while the operative procedure also interferes with the excursions of the impaired lung. Cyanosis may intervene; therefore, oxygen should be administered from the start.

Operations of the chest are divided into two types. First are those in which the pleural is not opened, and second are those in which it is necessary to open the pleural cavity. In the first type, novocain is the anesthetic of choice, supplemented by nitrous oxide as needed. In the second type, anesthesia is more of a problem, as, in this case, the lung collapses, and novocain must be supplemented by oxygen and nitrous oxide under positive pressure.

Spinal anesthesia for chest surgery, especially lobectomies, is a dangerous procedure due to its depressing effect on the respiratory system, and should only be used in carefully selected cases. During lobectomies the heart may stop beating, which demands that the patient be placed on back, the wound closed with towels, and oxygen given under pressure. If air embolism occurs, it is usually fatal. In any chest surgery, it is of advantage not to entirely abolish the cough reflex.

### DERMATOLOGY

By E. E. BROWN, M.D.  
Doctors Building, Nashville

Effect of Hormones of the Sex Glands on Acne. M. T. Van Studdiford, M.D., New Orleans. Archives of Dermatology and Syphilology, March, 1935.

Since 1926 the author has been administering ovarian and orchic extracts by mouth to occasional patients, and since 1929 he has given these extracts as a routine. Because of the frequently observed curative effects of marriage in the woman with acne an orchic extract was given to women with the following results: Of the 27 patients who received the extract, 18 who had previously been given ovarian extract over a long period, 10 failed to show improvement; 8 improved, one of whom was relieved of accompanying nervous symptoms. Of 9 patients who were given orchic extract alone 2 failed to improve and 7 showed improvement. One of these gained 20 pounds and 2 who received no X-ray treatment remained well for 2 and 8 years, respectively. More recently an estrogenic substance of 50 rat units was given on alternating days beginning 7 days before the calculated menstrual period. Of the 15 patients thus treated, 11 improved. Of these, 6, whose age ranged from 13 to 19 years, respectively, menstruated normally within 3 months; 2, aged 19, after amenorrhea of 5 years duration, began menstruating; 2, after periods of irregular menstruation since adolescence, menstruated regularly, and 1, aged 22, who had undergone oophorectomy 1 year previously, menstruated and showed improvement. Four of the



patients with amenorrhea did not improve. Certain hemophilic males are said to have responded favorably to the introduction of ovarian extract.

All patients with acne were examined for focal infection and for the possible use of bromides and iodides (especially iodized salt) and also for intestinal intoxication.

Women past 24 years of age responded to ovarian therapy in a higher percentage of cases than did the younger patients. Young girls with early signs of acne and approaching menstruation responded to substitutional injections of from 25 to 50 rat units of estrogenic substance every other day for 3 days. These were given at every 28 day period.

It was the author's opinion that the therapy for acne will be greatly improved as study of the glandular hormones progress. He concluded that the crude glandular therapy is far from being specific in the treatment, but that the results were sufficient to encourage one to give it further study.

### OPHTHALMOLOGY

By ROBERT J. WARNER, M.D.  
Doctors Building, Nashville

The Changes in Refraction in Diabetes. F. P. Fischer.  
*Archives of Ophthalmology*, April, 1935.

In 1933, Granstrom suggested that the changes in refraction which often occur in diabetic patients are due to changes in the nucleus of the crystalline lens, due to a retention of salt. Such a retention of salt in the lens leads to an increase in the refractive index of the eye as a whole and thus produces transitory myopia.

A similar retention of salt had been found by Klein in other tissues of the body, in that there occurs in the diabetic patient a change in the proportion of colloid-bound water to free water. In such cases the colloid-bound water is decreased, which accounts for the rapid loss of body weights. When a diabetic patient is given insulin, the power to bind water in colloid form is recovered, and the retention of salt ceases to be a "dry" salt retention and becomes a "wet" salt retention. According to Granstrom, the transitory myopia occurs during the state of "dry" salt retention in untreated diabetic patients, whereas, in the stage of "wet" salt retention during treatment, hyperopia may occur.

Fisher agrees with Granstrom and cites a case which he previously reported, which tends to support Granstrom's theory. He points out that such changes in the refraction in diabetic patients indicate a change in the permeability of the lens, and, since a change in the permeability of the lens is

probably the first stage in the development of cataracts, these changes in refraction should warn one of the danger of cataract formation, and the condition should therefore receive immediate attention and treatment. He believes that at this stage appropriate treatment of the diabetes can effectively check the process.

The author then points out that the permeability of the lens capsule may be quite different from that of the lens tissue itself, which he believes is quite independent of the former.

### PEDIATRICS

By JOHN M. LEE, M.D.  
Doctors Building, Nashville

Excretion of Drugs in Milk. Nathaniel T. Kwit, M.D., and Robert A. Hatcher, M.D., New York. *American Journal Diseases of Children*, April, 1935.

A study was undertaken to determine the amounts of some of the commonly used drugs excreted in human milk with a view to estimating the concentrations in which they occur in milk after the administration of therapeutic doses, or at least determining whether they are present in amounts sufficient to cause injury to the normal nursing child.

Milk was used from patients in the obstetric ward obtained from the third to the ninth day after delivery. In every case the milk was pumped from the breast immediately before the administration of the drug and after varying intervals following administration.

"Morphine could not be detected with certainty in the milk of a woman who had received sixteen mg. of the sulphate by hypodermic. No codeine could be recovered from any specimen of milk after doses varying from thirty-two to sixty-five mg.

"Salicylic acid was detected in every one of four specimens of milk following the administration of total amounts of 0.6, 1.2 and 4 grams of sodium salicylate.

"No evidence of phenolphthalein in the milk was obtained even after a dose of ninety mg., although as little as 0.03 mg. per cc. of milk could have been detected with certainty.

"No evidence could be found of the presence of barbitol in any specimen of milk, even after doses of 650 mg. of barbitol.

"After the administration of sodium bromide in single doses of one gram and total doses of fifteen grams, every specimen of milk, except the first in one case and the first and second in another, yielded bromide. In one case the amount present was sufficient to suggest that the continued use

of such milk might cause mildly toxic symptoms in an infant.

"Two specimens of milk obtained after a total of three and eight-tenths grams of potassium iodide and one after a total of four and six-tenths grams of potassium iodide contained only extremely small amounts of iodide.

"None of the drugs, except sodium bromide, was present in the milk in an amount sufficient to indicate that the continued use of such milk would injure a normal nursing child."

### **SURGERY—GENERAL AND ABDOMINAL**

By BATTLE MALONE, II, M.D.  
1400 Monroe Avenue, Memphis

Clinical Use of a Plastic Pylorojejunostomy in Chronic Duodenal Ulcer. Golder L. McWhorter, M.D., Ph.D., Chicago. *Archives of Surgery*, Vol. 30, No. 3.

This operation is presented as incurring less risk than a gastric resection; as permitting a more normal gastric physiology; and as being less likely to be complicated by jejunal ulcers than other operations.

The genesis of ulcer in man, according to Ivy and Fauley, is explained by emotional disturbances which, through pylorospasm, disturb the emptying of the stomach and may mechanically rupture a blood vessel. Other factors are gastric retention, augmented motility, and prolonged contact of gastric juices with the mucosa.

From experiments with different types of operations, Ivy and Fauley concluded that the method of anastomosis would seem to be more important than the susceptibility of the mucosa, and that jejunal ulcer would be less than one-half so likely to occur after a properly performed end-to-side pylorojejunostomy as after a gastrojejunostomy.

There are four fundamental objectives in the healing of an ulcer: (1) rest to the ulcer; (2) improvement of the local blood supply; (3) removal of the cause; (4) restoration of normal gastric function.

In a series of over 1,000 cases treated by the Sippy method forty-nine per cent were cured, sixteen and five-tenths per cent improved. The poor results in about twenty per cent, according to R. C. Brown, were due to extensive fibrosis of the ulcer from lack of early medical treatment. Other factors concerned are pylorospasm, which produces retention and high acidity, and inadequate regurgitation of the duodenal secretions, which tends to neutralize the gastric acidity.

The percentage of cures after gastrojejunostomy, according to Balfour, Gatewood, and Gaither, ranges from eighty to ninety per cent, including all peptic ulcers. The incidence of jejunal ulcers

after gastrojejunostomy is about three per cent. Jejunal ulcer is more likely to follow any method of gastrojejunostomy which prevents early access of duodenal secretions about the stoma (Mann).

The incidence of gastrojejunal ulcer following gastric resection varies, according to different reports, from one to ten per cent. Lahey found the mortality twenty per cent after resection for jejunal ulcer.

The technical and physiologic advantages of pylorojejunostomy over other methods are: (1) the motormechanism of the stomach and antrum is maintained for normal mixing and emptying; (2) the alkaline juices of the antrum are retained; (3) the dangerous ulcers of the lesser curvature are avoided; (4) mechanical drainage of the stomach may be improved by sewing the antrum down and to the left through the transverse mesocolon.

The author reports a case which was previously treated with the Sippy diet. A plastic pylorojejunostomy was performed, with resection of a chronic perforating ulcer of the posterior wall of the duodenum into the pancreas. The duodenum was cut across completely just below the pylorus and the ulcer rim excised, leaving the dense fibrous base on the pancreas. The lower end of the duodenum was invaginated with fine silk. The pyloric end of the stomach was freed for a short distance, and a longitudinal cut was made through the anterior wall of the pylorus, extending about one inch into the antrum of the stomach. A loop of jejunum brought through the transverse mesocolon was placed with the distal part downward against the enlarged pyloric end of the stomach, and anastomosis made, using three rows of chromic catgut sutures. The loop of jejunum with the attached pyloric end of the stomach was then pushed down through the hole in the mesentery, and its edges were sutured just above the line of anastomosis.

### **UROLOGY**

By TOM R. BARRY, M.D., F.A.C.S.  
Medical Building, Knoxville

League of Nations Investigation and Report on Treatment of Early Syphilis. By the Committee of Experts on Syphilis and Cognate Subjects, Zurich, November 21-23, 1934. *Jour. A. M. A.*, April 13, 1935.

The Health Organization of the League of Nations publishes the results of an inquiry into the treatment of syphilis carried out in five countries (Denmark, France, Germany, Great Britain, and the United States); ninety-three clinics in these countries have contributed to this inquiry, and 13,198 case records of primary and secondary syphilis have been analyzed.

The experts who have collaborated have adopted the following recommendations:



1. Treatment should be recommended as early as possible in the seronegative primary stage. In this connection, the fullest possible use should be made, for purposes of diagnosis, of the microscopic examination of secretion from primary lesions or from lymph glands.

2. It should be emphasized that, prior to the institution of either of the systems of treatment to be outlined, there should be an adequate physical examination to determine the absence or otherwise of any indication for caution in respect of the dosage.

3. It is essential that, in carrying out the treatment, a strict supervision of the patient be exercised, especially in respect of the mucous membranes, skin, kidneys, and liver.

4. Observations, clinical and serologic, after completion of treatment should be adequate, and in any case for not less than three years.

5. Adequate examination of the spinal fluid, at least before dismissal from observation, is essential.

6. The principles to be followed in carrying out the actual treatment should be as follows:

(a) To employ a comparatively heavy individual dosage of the arsphenamines and of the bismuth or mercurial compounds, the doses being administered in comparatively rapid succession, especially at the commencement.

(b) To maintain a persistent attack on the disease, avoiding intervals of such length as to afford the parasite an opportunity of recovering.

(c) To administer approximately as much treatment in primary as in secondary cases.

7. The material studied does not enable a clear decision to be made as to the relative merits of intermittent treatment, with courses of injections in rapid succession separated by rest intervals of some weeks, and continuous treatment, or between the simultaneous employment of both arsenical and bismuth or mercury and the system in which bismuth and mercury are withheld until a number of arsenical injections have been administered.

It seems possible that the intermittent treatment that is suggested may in effect be continuous or practically continuous treatment owing to the continued absorption of bismuth from the sites

of the injection for some weeks after any temporary suspension of the treatment.

It is recommended that:

(a) In cases which remain or become serologically negative during, or by the end of, the first course, four such courses be administered, with intervals of three to five weeks between any two courses.

(b) In cases which have not become seronegative by the end of the first course, in addition to the amount of treatment shown in *a*, further courses should be administered until the patient has received as a minimum three beyond that which has ended with negative serum reactions. At the option of the individual clinician, this treatment may be prolonged as may be considered necessary.

(c) Cases presenting signs of clinical relapse of an early type should be dealt with on principles similar to those enunciated in *b*.

For nonpregnant females, treatment should be administered on the plan outlined for men, with the exception that the single dose of neoarsphenamine should be reduced by 0.15 gram and that of arsphenamine by 0.1 gram.

As an optional scheme, three series of from ten to twelve injections each of the arsenical drugs may be given. To secure an overlapping of the heavy metal and the arsenical, believed by some observers to protect against neurorelapses, one should begin the bismuth treatment two, three, or even four injections before the end of the longer arsenical course and continue it through the period in which the arsenical is suspended and on into the beginning of the next arsenical course. The bismuth treatment is then suspended while the arsenical course is completed.

The bismuth salt advised for this system is bismuth salicylate in oil suspension, in full adult dosage with due regard for weight.

The use of the iodide is optional, depending on indications.

The use of insoluble mercurials intramuscularly in this system is not recommended.

In cases of primary syphilis that have remained seronegative throughout, a minimum of five courses of arsphenamine or neoarsphenamine should be given. In cases of seropositive primary syphilis, the full treatment called for by this system should be given.

# THE JOURNAL

OF THE

## TENNESSEE STATE MEDICAL ASSOCIATION

DEVOTED TO THE INTERESTS OF THE MEDICAL PROFESSION OF TENNESSEE

ISSUED MONTHLY, Under Direction of the Trustees

H. H. SHOULDERS, M.D., Secretary and Editor

W. M. HARDY, M.D., Asst. Secretary-Editor

OFFICE OF PUBLICATION, 510 DOCTORS BUILDING, NASHVILLE, TENNESSEE

Volume XXVIII

JUNE, 1935

No. 6

### ACUTE ABDOMEN IN CHILDREN\*

PHILIP BARBOUR, M.D., Louisville, Ky.

THERE ARE MANY and varied conditions in the abdomen which may suddenly become acute and demand immediate attention. The pediatrician often unassisted must determine whether the surgeon should operate at once or further medication be attempted to effect a cure.

The subject is quite a large one, and material relative to it is scattered quite widely through textbooks and the literature. But certain generalizations will enable us to grasp some salient features and to arrange our ideas into definite concepts. An enumeration of all the lesions would prove unprofitable and tedious. Fortunately they may be grouped under four heads which are clinically distinct, and each of which presents quite individual concrete problems.

The acute symptoms may be due to obstruction of the bowel, acute infections penetrating the wall of the bowel, traumatic injuries to the abdomen, and extraperitoneal lesions which may be most misleading because the pain from them may be referred by the child to the abdomen.

The prominent symptoms of acute abdominal attacks are pain, nausea with or without vomiting, and obstipation. Vomiting and obstipation separately or combined are met with so frequently that they do not usually arouse any apprehension unless pain also is present. When pain is felt, we at once recognize it as a danger signal of the

greatest importance. Pain is of course a subjective symptom, and varies in degree, intensity, and persistence in different children. The localization of painful points in the abdomen is very indefinite and variable in children, partly because of the ignorance and lack of cooperation on the part of the child, but mostly on account of our lack of accurate knowledge of sensory paths involving the sympathetic and somatic systems. Mackenzie and others have noted that the abdominal viscera may be handled and even traumatized without the sensation of pain. It seems that pain is felt only after sudden stretching of the musculature of the gut, or after disturbance of the blood supply, but even then the pain is felt by the patient usually in the median line and often at some distance from the real site of the injury.

Anatomists and physiologists have mapped out very accurately the distribution of the spinal sensory nerves. The parasympathetic and sympathetic ganglia lie along the spinal column and have synapses with the somatic nerves, but the course of the sympathetic fibers is as yet less well known. The viscera do not as a rule have sensory fibers from the spinal cord, so that sensation of pain is vague and diffuse, but often there is a hyperesthesia spreading into the muscular tissue.

Clinically, we find that lesions of the stomach and small intestine down to the ileocecal valve will refer pain to the median line above the umbilicus. If the pain is felt below the umbilicus or over the bladder, then

\*Read before Tennessee State Pediatric Association, Nashville, April 8, 1935.



the lesion is in the colon, sigmoid flexure, or rectum. It is well known that children do not localize pain as accurately as the adult, which makes for greater difficulty in locating the viscera responsible for the pain. We remember also that the parasympathetic, the sympathetic, and the sacral autonomic ganglia are practically continuous, separated only anatomically by the diaphragm, which is not present at first but is developed in later embryonic life. So, there is a wide range of sympathetic nerve impulses associated with the parasympathetic and autonomic ganglia as well as with the true sensory nerve fibers.

We find gastric and hepatic disorders with pains in the chest, heart diseases with abdominal pain, tuberculosis of the upper lobes with marked gastric symptoms, and so on.

The pain of pneumonia or pleurisy is so often referred to the lower right quadrant as to have led to many an incorrect diagnosis. It may be stated here that X-ray examination of the chest will not always be conclusive in the early stages of pneumonia. Certainly, we must never fail to listen to the back of the chest when the child complains of pain in the front of the abdomen.

Dr. Eugene Rosamund has shown how to differentiate between the pain of colic and the pain of hunger. It would be a valuable contribution if some one would describe accurately the symptoms of a slumbering chronic appendix.

The importance of pain as a symptom has warranted this lengthy digression.

The sympathetic disturbance is not limited to pain alone, but affects also the various functions, a study of which would lead us too far afield from our present thesis. We shall proceed to the discussion of the first of our four groups, obstruction of the bowel. In this, fever is not encountered until late, or until peritonitis has developed.

Obstruction may be due to congenital maldevelopment of the esophagus, pylorospasm, or stricture of the pylorus, atresia of the duodenum, jejunum or ileum, malformations of the ileocecal valve, or embryonal defects in the colon, sigmoid, rectum, or

anus. They will cause vomiting more or less promptly after the administration of food, otherwise the babies are too young to give much subjective evidence of pain. Of these pylorospasm and stricture of the pylorus are fairly common, differential diagnosis between these two not always being easy. Peristaltic waves of the stomach recurring at fairly regular intervals with vomiting of the contents of the stomach may be due to a pylorospasm. If so, atropine, luminal and thick feedings will sometimes obviate an operation. Sometimes the stricture of the pylorus will not be complete at first, and barium, unless given in a very thick medium, will get by the obstruction. In some cases of stricture, sufficient food will pass the obstruction to produce yellow stools with no great diminution in the amount of the urine, but there will be no gain in weight. Such cases may be tided along, but if the dark green starvation stools appear, if the urine become concentrated and scanty, and there be progressive loss of weight, then we should delay only long enough to do such blood transfusions or saline and glucose injections as to relieve some of the effects of the dehydration and then operate.

Obstruction occurring at a later date may be due to substances within the lumen of the bowel, to lesions of the intestinal wall, or to tumors or other constricting conditions outside the bowel. Fecal concretions, masses of worms, hair balls, polypi, Hirschsprungs disease, and foreign bodies may obstruct the bowel. Certain substances, gallstones, for example, in the adult seem to cause spasm of the gut, which still further lessens the lumen of the bowel. The wall of the bowel may be affected and cause obstruction.

Stricture of the bowel from ulceration due to the dysentery organism, or to tuberculosis, or to syphilis requires a certain length of time, and is therefore rather rare in children, but intussusception is common even in the very young. Its prompt diagnosis is imperative, if the life of the child is to be saved. The most frequent site of the intussusception is the ileocecal valve, though Meckel's diverticulum, or other

forms of diverticulitis, is responsible for occasional cases. The active propulsive efforts of the bowel soon move the mass up the cecum to the hepatic flexure, then through the transverse to the descending colon, and possibly out through the anal opening. It is usually easily palpable at first, because there is no tympany. If the baby is closely observed, grunting, straining efforts are seen rather regularly every few minutes, often accompanied by vomiting. Usually stools follow the straining, at first the contents of the lower bowel, then bloody serum with mucus or a fibrin clot surrounded by a blood-tinged serum which spreads out into the diaper. If the intussuscepted gut is not very tightly constricted, this bloody serum may not show except following enemata. The rhythmical pains with vomiting, a flat abdomen, palpable mass, without any fever, should enable us to make a proper diagnosis. A barium enema with its characteristic appearance under the fluoroscope will clinch the decision. If one delays many hours, then the symptoms usually become progressively more violent, tympany and peritonitis with its high fever will soon cause the exitus, and so warn us that any hesitation in diagnosis is apt to prove fatal. There are, however, cases on record of the sloughing off of the intussuscepted mass with recovery. But who can afford to take the chance?

Obstruction from strangulated hernia may occur at the inguinal or femoral orifices, or from the diaphragmatic hernias which result from embryonal faults in the development of the diaphragm, or rarely from hernia into the peritoneal pockets. Volvulus and obstructions resulting from bands, kinks, or adhesions, or from tumors of the mesenteric or retroperitoneal glands, hypernephromata, teratomata, dermoid cysts, ovarian tumors, etc., will each present a diagnostic problem. Barium enemata and flat plate X-ray films are often of service. Palpation of the offending tumor is not possible always on account of the abdominal distention due to gas or maybe to ascitic fluid. The pain as noted above will be felt in the middle line above the umbilicus if the affected intestinal tract is

above the ileocecal valve, but below the umbilicus when the lesion is lower down.

If the cause of the obstruction has been slow in its growth and effect, there will have arisen a certain adjustment to the condition, and the symptoms are not likely to be so fulminating as in intussusception or volvulus. But when the obstruction is complete, a series of biochemical and metabolic phenomena arises that is quite characteristic and alarming.

Complete obstruction high up in the bowel soon causes vomiting of the stomach contents, then of the bowel above, the constriction which may be fecal—so called—in character. There is a noticeable decrease of chlorides in the blood, an increase of the alkaline bases, urea, and the nonprotein nitrogen. The diminution of the chlorine ions is in great part due to the vomited hydrochloric acid, but some physiologists believe that there is more loss of chlorine than can be accounted for by the vomiting and the lessened intake of sodium chloride. The injurious effect of this dechlorination is attributable to the important part that sodium chloride plays in the maintenance of osmotic pressure of the body fluids, and also the acid base balance and the transporting of the carbon dioxide.

The nervous symptoms of irregular, slowed respiration—pallor and collapse—may be caused by the alkalosis. Tetany is also observed, though there is probably an increased calcium content in the blood. The injurious effects of the loss of chlorine may be due not to the alkalosis alone but to electrolytic changes in all cells, which must result in death. The intravenous injections of hypertonic salt solutions have not only prolonged life but at times relieved the obstruction, possibly through a changed osmotic action in the minute blood vessels in the gut.

A quite different series of events will transpire if the obstruction is low down in the gut, as in strangulated hernia or volvulus. In this case, there are developed quite toxic products which produce death by general toxemia or by special injury to the nervous system. From the mucosa of this portion of the gut there is formed a



poison whose exact nature is not understood. It may be a proteose, a toxic amino acid, or a derivative of histamin, which is passed into the venous circulation through the injured mucous membrane, which has thereby been made more permeable to toxic products. Whatever the nature of the substance may be, its toxicity is very great, and no antidote has been found.

The second group embraces the primarily infective processes affecting the peritoneum, in which fever will develop very promptly. An acute infection of the peritoneum will result from perforation of ulcers in the stomach, duodenum, and ileum. They are not unknown even in babies, though progressively more common with age. Vomiting of blood or its passage through the bowel and sudden acute abdominal pain and prompt peritonitis do not differ essentially from the adult picture. Acute appendicitis, however, is far more frequent than these, and is often so at variance with the accepted clinical picture as to constitute a real problem whose solution is often our responsibility. The classical symptoms of pain in the abdomen, vomiting, some fever and acceleration of the pulse are not so typical in young children, and, in fact, are often misleading. Pain is rarely so pronounced a symptom and never so accurately delimited as in the adult. Children do not seem to have very definite localizing ability for painful spots. The pain of appendicitis may be felt high up under the liver, low down over the bladder, or even on the left side. Muscle guard often is not present, may be stimulated by the frightened child, or may be induced by referred pain from a pneumonia or pleurisy on the right side. Sweet has noted that the paroxysmal pains and the muscle guard may not coincide in time, and that muscle guard will relax at times in children.

Much gentleness, tact, and psychologic understanding of the child are necessary to a proper evaluation of the symptoms in the lower right quadrant. Release pressure or rebound pressure at some distant abdominal point will often elicit the pain better than pressure at McBurney's point. Careful auscultation over the abdomen will fail to reveal

any active peristaltic movement in the bowel. Audible peristalsis will rule out acute appendicitis, and, in fact, peritonitis from any source.

Blood studies have their value. A high white count is usually, though not invariably, present. Schilling has shown that the stimulus to the formation of the polynuclear neutrophils in the bone marrow is greatly increased by pyogenic infections, and in such cases the immature forms—the juvenile and stab cells—are out of proper proportion to the more mature cells. We are relying more and more upon such findings. Increased sedimentation rate is also confirmatory, but one who relies entirely upon laboratory technicians for a diagnosis is leaning upon a broken reed.

Rectal palpation on the left side first may aid, but it is disagreeable, if not painful, and the temperament of the particular child must be taken into consideration. It is not always feasible. The presence of muscle guard, drawing up of the right leg, and increased pain from hyperextension of the leg when elicited make the diagnosis easier. The other symptoms of vomiting, increased pulse rate, and a slightly elevated temperature may be caused by many conditions in children. Taken in conjunction with other findings, they aid in arriving at the proper diagnosis.

There is some doubt as to the relationship of allergy to pain at this point. Some surgeons seem to fear it in adults. Certainly, if the child is frankly allergic, with asthmatic, eczematous, or urticarial symptoms, or perhaps in cases with the exudative diathesis, one should give due consideration to this possibility. Such cases are necessarily quite rare.

Certain other lesions causing abdominal pain here will be discussed later in this paper.

The fact that appendicular abscesses are not so easily walled off by the peritoneum and omentum in children makes a general peritonitis imminent in all acute appendices; delay is thus fraught with unusual danger. It is very possibly true, as Sweet has suggested, that an unnecessary appen-

deotomy is less serious and dangerous than too conservative surgery.

The third division of our subject, the traumatic injuries to the abdomen, is more distinctly surgical in character, but there are very interesting medical problems which we should consider at some length. Coe has called attention especially to the danger of underestimating the seriousness of such injuries because the child does not seem to be in great pain. The shock of such injuries may completely obtund the sense of pain, and the somatic nervous mechanism, as well as the sympathetic, be correspondingly disarranged. By the time sensation has been restored, irreparable damage may have been done, and the most favorable time for operation lost.

Such injuries to the abdomen are becoming increasingly frequent in this age of the speeding automobile. Almost any combination of lesions of the solid and hollow viscera is possible, and the clinical picture is often most bizarre. Rupture of any of these organs may occur with little, if any, evidence of injury externally. We are prone to forget that the abdominal organs have few sensory nerve fibers as compared with the extremities, and that the shock of injury may abolish even these so that we must pay more attention to other objective symptoms, chief of which will be nausea and vomiting, a rapid, feeble pulse, fall in blood pressure, pallor, sweating, and other symptoms of shock. Hemorrhage will not be observed unless the broken blood vessel communicates with the intestine or bladder.

Rupture of the intestine will allow the escape of gases and fecal matter into the abdominal cavity with the resulting tympanitic note at the site of the normal liver dullness, or the fluoroscope will show the ptosis of the liver from the diaphragm. Rupture of the bladder, with consequent cessation of urination, may be confused with the markedly diminished urine from dehydration so common in children.

Ruptured solid viscera will cause internal hemorrhage with increasing pallor, vanishing pulse, and apnea, the well-recognized syndrome found in adults. While pain is absent, or at least not marked at first, the

ensuing peritonitis will be painful, but by that time the golden opportunity will have passed, and the outlook is almost hopeless.

The surgeon will be much more familiar with the whole subject of trauma, but there is one feature of such injuries which presents a very complex problem. I refer to paralytic ileus, which has its medical as well as surgical aspects. The extreme tympany that occurs in such cases of ileus may also be met with in pneumonia, typhoid fever, peritonitis, and other infectious diseases. The gas is in part due to fermentation or putrefaction of the food contents of the bowel, but most of the tympany is believed to be due to an outpouring of liquid and gas from the dilated capillaries in the mucosa, which lack the normal extravascular support due to the low tonus.

"Intractable and prolonged tympanitis may lead to grave symptoms and is a condition which is always alarming in post-operative cases and in acute fever. The increased tension leads to augmented secretions of gastrointestinal juices which may produce modifications in the blood picture resembling those of acute obstruction. In addition, embarrassment of the circulation results from mechanical interference with the splanchnic circulation or from pressure upon the heart through the diaphragm. Finally, the possibility exists that the permeability of the mucous membranes for toxic substances increases or that as in intestinal obstruction toxins are found in the normal membrane itself." Wiggles, *Physiology in Health and Disease*, p. 782.

Postoperative adhesions may suddenly obstruct the bowel, causing so much distention of the abdomen as to reopen the incision through the abdominal wall. Severe trauma is often followed by such paralytic ileus. The mechanism of this ileus is not by any means fully explained. One factor is the inhibition of intestinal motility by reflex action of the splanchnic sympathetic. The overdistention of the bowel may stretch the muscular coat beyond the possibility of contracting again. In such an event, pitting can hardly be of any benefit. Dr. Edward Clay Mitchell reports relief of this condition by spinal anesthesia, which should



block off the sympathetics. It is claimed that sympathectomy will relieve Hirschsprung's disease, but personal experience has not confirmed this. The gravity of ileus is only too apparent to any one, either surgeon or pediatrician, who has had sufficient experience to make him recognize danger signals. The solution of the difficulty is not at present evident. Perhaps a fuller knowledge of the principles of physiology and biochemistry will promote sometime a rational therapy.

Finally, we shall discuss briefly the extraperitoneal conditions which may simulate an acute abdomen. The pain of a right-sided pneumonia, or pleurisy, especially diaphragmatic, is a frequent cause of a mistaken diagnosis and a source of confusion to the surgeon and internist. Pericarditis and pancarditis may refer pain to the abdomen, and especially a coronary thrombosis, rare of course in children. The appendix has much lymphoid tissue in its walls, which may swell in sympathy with other lymphatic involvements; ulcerative tonsillitis particularly may be so accompanied. Measles is credited with some such errors in diagnosis. Rheumatism or a myositis of the abdominal walls is seen occasionally in scarlet fever.

The kidney should be remembered on account of pyelitis, stone, acute hemorrhagic nephritis, etc. The liver is often sensitive in the so-called catarrhal jaundice, or from active or passive congestion.

Lesions of the spine should not be forgotten, as they frequently are. Girdle pains, pressure on the cord and nerves from bone diseases, tumors of the cord, myelitis, beginning poliomyelitis, herpes, muscle strains will cause abdominal pain, as will also acute indigestion or an acute intolerance for certain foods.

Sylvester has listed some sixty extraperitoneal diseases with abdominal symptoms, and the number could be increased. A catalog of all such factors would be very helpful in arriving at a diagnosis, and each one should make his own list. The purpose of this paper, however, has been to discuss the general principles of diagnosis and treatment which underlie the acute abdominal lesions, which could and should be modified to meet the indications of the individual case.

If we maintain always a healthy scientific curiosity as to why pain is felt, and persist until we can answer the question aright, we shall save ourselves and our patients much anxiety and many needless operations.

## STUDY OF MATERNITY CARE IN GIBSON COUNTY\*

MAXWELL E. LAPHAM, M.D., for a Committee of the Gibson County Medical Society\*

PERHAPS thirty-five or forty per cent of the practice of the general medical man is in obstetrics and pediatrics. Realizing the importance of maternity care in the total practice of its members, the Gibson County Medical Society voted on April 20, 1934, to "sponsor a study of the maternity and infancy problems in Gibson County." This study was designed to cover not only medical service, but also the associated services rendered by public health nurses employed by the full-time county health department, and to assess the quality, indicate the results, and explore the opportunities of the joint service.

Obstetrical care in Gibson County is carried on almost entirely in the home. Practically all deliveries are by physicians, less than ten per cent by midwives. Of the 800 or 900 deliveries each year, not quite half are carried for nursing service by the health department in cooperation with medical supervision. All the handicaps characteristic of maternity care in a rural community are present.

In the country, the average woman is probably less informed about the importance of medical care during the childbearing period than in the city. She is often influenced by old customs, misinformation, and superstitions; she may look upon such care as entirely unnecessary and irksome because of her own or a neighbor's past experience.

Economic distress has influenced the trend of obstetrical practice to a considerable extent, because patients attempt to do without medical care in order to decrease the expense of having children, often to the point of imperiling the lives of both mothers and infants. Actually fifty-five per cent of the maternal deaths in Gibson County dur-

ing the period studied were among women who had never consulted a doctor until labor had begun or until the terminal complications had developed. Probably for the same reason, the number of cases delivered by midwives in this county has increased during the past few years. In 1931, thirty-six, or about three per cent of the total births, were delivered by them, while, in 1933, fifty-five, or nearly seven per cent, came under their care.

The doctor in rural practice, again, has special difficulties when he is confronted with the necessity of managing labor and delivery under very poor conditions. He may have no facilities with which to carry on a clean delivery; the patients may object to the usual preparation; there may be no one to help either with the delivery preparation or to give an anesthetic; more often than not, there has been no preparation made by the patient for delivery. Such difficulties are discouraging for the doctor who is trying to do careful work.

Since all such factors tend to alter the picture of maternity care, the statistical studies which are frequently reported from urban hospitals or clinics or from city experience in general do not throw as much light on local problems as would be desirable. So far as is known, this is the first study of maternity care made by a medical group in an essentially rural county with a homogeneous population. It is presented in five parts: (1) a review of medical procedures before, during, and after delivery in 100 cases reported by twenty physicians from their 1934 practice; (2) a brief account of the public health nursing service for maternity cases; (3) a statistical analysis of maternal and infant deaths in the three-year period 1931-33; (4) a discussion of medical and nursing care, with suggestions for the improvement of each; and (5) summarized recommendations and conclusions.

\*The committee consisted of Dr. W. C. McRee, Dr. John Jackson, Dr. B. S. Penn, Dr. G. C. Bryant, and Dr. T. W. Jones. This report was presented to the society, and its publication authorized on March 18, 1935.



## I

## REVIEW OF 100 RECENT CASES

It was thought that something might be learned about the actual medical care of maternity patients if a series of recent cases under the care of a number of physicians were studied. It might, also, be possible to offer some suggestions for improvement of the maternity care after analysis of this group had been made. Twenty physicians in the county, who attended most of the maternity cases, kindly consented to give five case reports each of deliveries in 1934. These histories, considered in an entirely impersonal way, were used to get a general cross section of the obstetrical practice. Recent cases were used so that the details could be recalled more readily. The cases were considered from the time of first contact by the doctor with the patient to the discharge following a final examination. One hundred cases may not constitute a large enough group from which to draw definite conclusions, but, since they were not specially selected, it seemed as though something might be learned from such a group.

In compiling the group, a very detailed history form, presupposing that each case was managed under ideal circumstances, was used. In studying these cases, however, obvious conditions such as lack of cooperation of the patient and difficulties in doing obstetrics in the home were taken into consideration.

Some definition of terms is necessary here. Under ideal conditions the patient should be seen once a month from the beginning of pregnancy until the end of the seventh month, then semimonthly visits should be made until delivery. Considering the poor cooperation on the part of the patient in presenting herself to a doctor, we have, in this study, considered that patients who have been seen monthly from the fifth month have had adequate prenatal care. Patients who have been seen by the doctor once and thereafter by the nurse, who theoretically reports her findings at all visits to the doctor, are also considered to have had adequate prenatal care.

Adequate postpartum care should consist

of a visit each day for the first four days and then every other day until the tenth day. In this study we have considered three postpartum visits by the doctor as adequate. The health department program provides that a nurse carrying a case shall see the patient at least three times in a six weeks' postpartum period. If these six visits were made, the care was considered adequate even though the visits were not well spaced, and more frequent visits in the early puerperium should have been made. A final examination was not considered in determining the proper amount of postpartum care.

*Prenatal Supervision*—In these 100 cases there were 218 prenatal visits made by the physician, an incidence of 2.2 visits per person. Twenty-two patients had adequate care, fifty had inadequate, and twenty-eight had none at all. At the request of the physician, twenty-nine of the 100 patients were seen by a nurse; of these, ten received adequate care and nineteen inadequate on the basis of what is considered adequate care by the nursing service. There were seventy-one who received no nursing care at all.

There is some discrepancy between the experience of this group in 1934 and the total record of nursing service during the three-year period, 1931-33. Only twenty-nine per cent were seen in this group, whereas forty-one per cent of the total cases in the county were seen in the prenatal period in 1931-33. In this study the nurses' visits averaged only 1.1 per patient. Since seventy-one cases had no nursing supervision at all, one may speculate that the doctor either did not report the case to the nurse or the nurse did not see the patient after the case had been reported. It is entirely probable that the physician in charge gave adequate prenatal care without nursing supervision to some of these seventy-one patients.

*Management of Pregnancy* — Only six doctors kept helpful records or took a history on patients in this group. A total of thirty cases, then, had some record; in the remainder, the doctor had to depend upon his memory for any details in the history

about which he was asked. Some of the outstanding points in the management of pregnancy were that a general physical examination was done on only fifteen cases, and twenty-three had pelvic measurements made. A single physician made pelvic measurements routinely, and eight made them on primiparae. There were twenty-five rather severe complications during pregnancy, which required treatment in this hundred-case study. This last finding would make one feel that, since twenty-five per cent had complications during pregnancy, more frequent examination of patients might have prevented some of them.

*Management of Labor*—The management of labor was interesting from the standpoint of the general condition of the patient. Diet was not considered seriously during this period. Enemata were only given in nine cases, and the condition of the cardiovascular system rarely recorded as regards blood pressure or cardiac pathology. As far as pelvic examinations were considered, vaginal examinations were made in eighty-nine cases, rectal examinations in six cases, and because of precipitate deliveries five were not examined at all. Analgesics were administered in fifty-one cases, the barbiturates and morphine being used most often. Oxytocics were used in twenty cases in the first and second stages of labor, eighteen cases being given pituitrin in varying doses, and two receiving quinine. These drugs were used most often in the second stage of labor but occasionally in the first stage. The condition of the fetus, considered by listening to the fetal heart sounds, was determined in thirty-seven cases.

*Preparation for Delivery*—The preparation of the external genital region by shaving or clipping was done in only thirteen cases. Realizing the antipathy which some women have for such procedures, perhaps a better routine in this respect could not be expected. However, one or two physicians were able to prepare patients in this manner routinely. Eighty-nine cases were scrubbed either with soap and water, followed by an antiseptic solution, or by soap and water alone. The latter procedure is probably entirely sufficient if it is done well.

Sterile equipment was used in only nine cases; and in ten cases the patients were *not even* exposed for delivery. Preparation of the physician for delivery in eighty-nine cases consisted of wearing gloves, some scrubbing the hands before but many not scrubbing at all. In eleven cases no gloves were used at all. Gowns, sterile or not, were worn in only nine cases.

*Delivery and Outcome*—In the hundred cases, ninety-seven delivered spontaneously and three operatively, two being delivered by forceps and one by podalic version. This does not seem to be a high incidence of operative interference. There were ninety-six living infants and four stillbirths. The causes of the stillbirths were unknown in three cases; in the fourth the doctor suspected that the stillbirth was the result of a too precipitate delivery following the use of pituitrin. The incidence of stillbirths in this group was somewhat higher than in other recorded studies.

There were seven neonatal deaths; five of these occurred within five hours following delivery, three from prematurity, and two from unknown causes. Two died at three weeks following delivery, also from unknown causes. The incidence of neonatal deaths in this group is high, but, discounting the premature births, it is only slightly higher than for the three-year series of cases under medical and nursing supervision. Perhaps, if the causes of the later neonatal deaths were known, the incidence could be still further corrected. There were no maternal deaths in this hundred-case group.

*Postpartum Care*—In considering postpartum care, it was found that there were 226 medical visits made, an average of 2.3 per patient. Nineteen cases received adequate care and sixty-two inadequate care, with nineteen receiving no care at all. Nursing visits totaled sixty-five, an average of 0.65 visits, or less than one visit per patient. Thirteen of these cases under nursing supervision received adequate care and sixteen inadequate care; seventy-one received no nursing care at all. The incidence of nursing supervision in this group is lower than it should be, since only twen-



ty-nine per cent had that supervision as against forty-one per cent in the three-year series. However, several of these cases were still being visited by the nurse when the study was being made, and this may account for a part of the discrepancy. Seventeen genital and sixteen extragenital puerperal complications were noted, which required treatment during the early puerperal period. This means that at least one-third of the 100 cases were morbid following delivery.

*Final Examination*—Only eighteen cases had a final examination; seventy were not examined at all, and twelve were in a group not yet discharged. This is a low percentage for those having follow-up examinations; it is only about one-third of the total group, even if the twelve cases still under supervision are considered as possibilities for final examination. Of the eighteen cases which were examined, seven were found to have genital pathology, and three had some general condition which required treatment. Over fifty per cent of those examined required subsequent treatment — a strong argument for follow-up examination.

## II

### PUBLIC HEALTH NURSING SERVICE IN MATERNITY CARE

At present the nursing division of the Gibson County Health Department consists of one supervising nurse and five field nurses. Each nurse is assigned to the cases of doctors in certain sections of the county. They see the patients who are referred to them for supervision by the physician, patients who are to be delivered by midwives, and some who have made no arrangements for delivery. The last group is instructed to see a physician to arrange for delivery as well as to receive medical care.

Patients already referred by a doctor are given instructions which the doctor has previously outlined to the nurse. If the patient states that a certain doctor will deliver her, the nurse reports that case to the physician in question, and obtains orders from him for subsequent care. There are, also, standing orders: at the first visit the nurse carries out certain procedures such

as taking blood specimens for Wassermann reaction; when she sees the patient thereafter, the routine consists of taking blood pressure and specimens for urinalysis. Routine findings are reported to the physician as soon as possible after each visit. The nurse is supposed to ask the patient at each visit about her diet and about pertinent symptoms, such as constipation, headache, visual disturbances, edema, bleeding, and pain of any kind. If any of these symptoms are present or if the blood pressure or urine specimens are abnormal, the patient is instructed to report to the doctor immediately. The nurse, also, reports these findings to the physician.

The nurse teaches the patient how to prepare for delivery, suggests what materials to prepare for the care of the newborn infant, and demonstrates how to bathe and dress it. Under ideal circumstances, the nurse should see the patient once a month until the eighth month, when visits should be made every two weeks. Because of the heavy schedule carried by nurses in other fields of work, it is impossible to follow this routine except in complicated cases. However, at least three visits to each patient are made in the prenatal period.

At least three postnatal visits are made in the six weeks' puerperal period. The nurse inquires of the doctor if he is returning to see the patient following delivery. If he is not, she instructs the patients at one of the visits how to do certain exercises, such as the knee-chest position, and also advises the patient to go to the doctor six weeks after delivery for a final examination. Temperature, urine examination, and blood pressure are taken at least once and usually three times in the puerperal period. The nurse gives no bedside care except instruction in the care of the baby.

In the three-year period, 1931-33, 1,167 cases of the total 2,817 reported births were under nursing supervision. About forty-one per cent of the maternity cases in the county, therefore, had some nursing care either prenatally or postnatally. There was a total of 5,909 nursing visits with an average of three prenatal and 2.5 postnatal

visits made to each patient under supervision.

Of 1,099 cases receiving antenatal care, the nursing visits to 1,052 were reported to the physicians. 1,043 cases had urinalyses done, 1,092 had blood pressure readings, and 781, or seventy-one per cent, had blood Wassermann's taken. One may assume from these data that the same number was reported to the doctors so that they had a check on nearly all of their patients under nursing care as regards urinalysis and blood pressure and upon any abnormal symptoms, and on seventy-one per cent as regards Wassermann reaction.

In comparison to the number of nursing visits, there was an average of 2.8 medical visits ante partum and 2.6 medical visits post partum. However, there were 260 cases seen by the nurses that were not seen by the doctor after delivery. In considering the relation of those patients under nursing supervision to those not under supervision, it can be definitely pointed out that the results obtained in the latter group were not as good as in the former in respect to maternal and infant deaths and stillbirths. There were 7.9 maternal deaths per 1,000 women not under care as compared to 6.0 per 1,000 women under care; there were 36.4 stillbirths per 1,000 women not under care as compared with 21.4 per 1,000 women under care; there were 33.3 neonatal deaths per 1,000 women not under care as against 31.7 per 1,000 women under care. There is so definite an improvement under the nursing service that it cannot be disregarded as a factor in causing the lowering of maternal and infant deaths.

Perhaps this can be explained in part by the fact that these cases are seen more often medically because of the nurse's supervision, and because she immediately reports to the doctor any complications which may arise. There is no question but that the nurse can make contacts with the patient earlier than the doctor, because of her intimate association with women in certain districts. She also is in a position to report those cases to the doctor much earlier than the patient would ordinarily do it herself.

About 164 patients were reported to the doctor in this manner by the nurses, or 15.7 per cent of the total number under nursing supervision. The service apparently does not relieve the doctor of the difficulty incident to prenatal and postnatal care and certainly gives consideration to a group of patients that perhaps would be seen very infrequently by a medical man, if at all. The nurse is supposed to see that the orders given by the doctor are carried out. However, the service is in no way supposed to replace the prenatal and postnatal care given by the doctor but simply to supplement it. The nurse also should be of considerable help in instructing the patient about preparation for delivery, the care of the infant, etc. The doctor often finds these matters irksome to explain; in many instances he says nothing about them.

Perhaps insufficient time has elapsed to show the value of the service, but in the past three years the incidence of cases under supervision has increased from 38.9 per cent in 1931 to 40.7 per cent in 1932, and 45.1 per cent in 1933. Besides this improvement, the physician must receive some benefit from the service because of the more frequent checkup on patients about whom he hears only through the nurses' reports.

The effort of the department of public health, as a unit, to improve maternal conditions cannot be ignored, because most of the routine laboratory procedures are done by that department, such as the urinalyses and blood Wassermanns. The results of these tests are all sent to the doctors. The department also has an organized anti-luetic clinic where all cases of syphilis, including those occurring in pregnant women, can be referred by the physician for treatment.

### III

#### MATERNAL AND INFANT DEATHS, 1931-33

A study was made of all maternal and infant deaths occurring in Gibson County in the three years, 1931-33. This study was made in an entirely impersonal way, and judgment as to the capability of individual physicians played no part in the conclusions reached. In the maternal mortality



study, the data used were obtained from the death certificates, from the nurses' records, and from a discussion of each case with the attending physician. The last method was the most satisfactory way of obtaining the desired details, of course, though practically all of the histories given by physicians were from memory. Families of deceased patients were interviewed in only two instances, where there had been no physician in attendance or where the case had been completely forgotten by the physician who signed the death certificate.

In view of the methods which had to be used, the conclusions are not entirely accurate and probably not above criticism. The time element played a considerable factor, since the physicians kept few records, and the details surrounding the death of the patient may have been forgotten almost entirely. Several deaths occurred two or three years preceding the study, which made it difficult to get good histories. The inaccuracy of the cause of death on the registered death certificates made it difficult to arrive at satisfactory conclusions. The nursing records were of some help, though very little data concerning maternal and infant deaths were found on them. In the cases which had nursing service, however, the prenatal notes were frequently of help in determining the type of complication from which the patient might have suffered before a physician saw her, but the fact that several cases were not seen by a physician until the final illness made it difficult to draw exact conclusions as to conditions existing before the terminal illness. For example, a physician thought that one case was complicated by a contracted pelvis, though he had no definite data concerning this deformity. Another case not seen until shortly before death was diagnosed as late toxemia of pregnancy, whereas from the subsequent history obtained from the doctor the complication seemed to be cardiac decompensation.

There were twenty maternal deaths in the three-year period, 1931-33; eleven white and nine colored. This gave an incidence of 7.3 maternal deaths per 1,000 live births.

The incidence of maternal deaths in Tennessee for a similar period was 6.7 per 1,000 live births, and in the United States Registration Area 5.9 per 1,000 live births. There were twelve multiparae and eight primiparae in the group. The greatest incidence of mortality, by decades, occurred in the age group 20-29.

Thirteen deaths occurred in the home; three in the hospital; the other four cases were either undelivered or the place unknown, or they were cases of early pregnancy. Probably no definite conclusion can be drawn from the place of delivery in relation to maternal mortality in this group. Three patients, delivered at home, were subsequently taken to the hospital, where they died.

In considering lack of prenatal care as a contributing cause of maternal mortality (See Table V), it was found that only two patients had adequate medical care; nine had inadequate, and nine had no prenatal care at all. When one considers that the group of nine inadequately-cared-for patients were probably only seen rarely, it shows that there was a great preponderance of the deaths in the "under-cared-for" group.

As regards nursing supervision (Table V), there were four cases which had adequate care, three inadequate, and thirteen none. It was shown that the incidence of maternal mortality under nursing care was definitely better than those not under care. There were 6.0 deaths per 1,000 women under care, whereas in the group not under care there were 7.9 deaths per 1,000 women.

The type of delivery in the maternal death group (See Table I) consisted of: five spontaneous, twelve operative, two unknown, and one where death occurred before the infant was born. This shows a preponderance of operative deliveries as a contributing factor in maternal mortality.

The types of operation (See Table I) included: one curettage and tamponade in a case of septic abortion; one abdominal section for a ruptured ectopic pregnancy; four podalic versions; one decompensation of a breech; two forceps deliveries; and three

Caesarean sections. Sixty per cent of the total maternal deaths were complicated by operative procedures.

The incidence of fetal deaths in the maternal mortality group showed that there were nine live births, seven stillbirths, two neonatal deaths, and one child undelivered. The remaining three consisted of one ectopic gestation, one abortion, and one questionable pregnancy (See Table II).

In considering the causes of maternal deaths (See Table III), it was necessary to correct some of the original causes given, by reviewing the cases with the physician or attendant on the basis of what data could be obtained. Two cases of eclampsia and one case of puerperal septicemia were among those where the diagnosis was changed. It seemed necessary in four cases to use joint causes, since both causes in each case were major complications. Under this group, there were two cases of placenta previa which developed puerperal septicemia; one case of transverse presentation which developed puerperal septicemia following Caesarean section; and one case where, from the history and the rapidity of death following delivery, it seemed that internal hemorrhage was the cause of death, although the patient showed signs of infection, so that puerperal septicemia was likewise given as a cause of death.

*Potentially Controllable Deaths*—An effort was made to determine on the basis of data obtained from records and from the attendant whether or not some of these deaths were possibly preventable. It is obvious that this was difficult to determine accurately. It was realized that there will always be a certain number of deaths which should be prevented, but because of existing circumstances cannot be. In analyzing the entire group of deaths, however, those which occurred from causes which are theoretically subject to control were classified as preventable. The cooperation of the patient in having prenatal care and in calling the doctor before serious complications developed was considered in allocating responsibility for preventable deaths so far as the patient was concerned. The nursing

supervision and reporting of complications to the doctor were considered in relation to the nurses' responsibility. The management of the case by the doctor during labor and delivery, the type of interference, and subsequent treatment were all taken into account in judging preventability and responsibility for deaths.

Fifteen cases (See Table III) were classified as preventable deaths; three as non-preventable; and two were unclassified because of insufficient data. In discussing these preventable deaths in relation to cause, one ectopic pregnancy was found to have had symptoms for a number of weeks before the operation was finally performed. Death was apparently due more to error in early diagnosis than to technique in operation. Two cases of postpartum hemorrhage were considered to be preventable because in neither case was the uterus packed, which procedure possibly would have saved the lives of these two patients. Eclampsia accounted for three potentially preventable deaths; one because consultation was delayed; one because the patient had never been seen until she was in eclamptic convulsions, and the other case because she had neither consulted the doctor nor did it seem that the doctor used proper judgment in handling this case after he had been called. In this latter case, joint responsibility was given.

Pulmonary embolism accounted for one death which might have been prevented had orders been carried out by the patient.

Puerperal septicemia alone accounted for three maternal deaths, which apparently could have been prevented. In all three, some intra-uterine manipulation was done during the delivery, and, on the basis that the patients were infected in that manner, these deaths were considered preventable.

One case complicated by a placenta previa and puerperal septicemia was considered preventable because insufficient advice had been given by the *consultant* when the patient had been sent to him during her first hemorrhage. As a result, she had to be delivered under very adverse circumstances at home, in a depleted condition, and consequently developed the fatal septicemia.



The other case of placenta previa and puerperal septicemia was one upon which a Caesarean section was done after the diagnosis of placenta previa had been made, and before any amount of hemorrhage had occurred. Since the patient was noninfected before operation, this death was also considered preventable.

A case of transverse presentation which subsequently developed puerperal septicemia was considered preventable because intra-uterine manipulation had been attempted in an effort to deliver the child, after which a Caesarean section was done. Error in judgment as to type of delivery contributed to this fatality.

Ruptured uterus and puerperal septicemia were joint causes in one death where both error in judgment and technique of delivery apparently contributed to the death.

In this group of preventable deaths (See Table VI), the doctors seemed to be responsible in nine cases, a consultant outside of the county responsible in one, a midwife in one, the patient in two, and there was joint responsibility in two. The midwife, because she failed to call a consultant until some time after eclampsia had developed, was definitely given responsibility for that one case. Two patients were held responsible for their deaths, in one case because the patient did not report to the physician until eclamptic convulsions had developed, and in the other because failure to carry out the physician's orders apparently accounted for the death by pulmonary embolism. Joint responsibility occurred in two cases; one where an eclamptic patient failed to consult the physician, and the physician apparently used poor judgment in the management. The other joint responsibility was in a case where the doctor had referred the patient to the nursing service for prenatal care and the patient was never seen. When she was finally visited by the doctor about thirty minutes before death, she was in extreme cardiac decompensation. The patient was jointly held responsible for her death because she had never consulted the physician, and he had only called the nurse because he had been told the patient was pregnant, not

because she was known to be in a critical condition, and the nurse had not seen her before death occurred.

*Stillbirths*—It was particularly difficult to obtain any satisfactory data on this group relative to the conditions causing the deaths. Very few of the physicians were able to recount the details of the case accurately, and a great many of the neonatal deaths occurred without the physician's being notified. Apparently there had been little effort in the past to make an attempt to diagnose the cause of stillbirth. The single diagnosis of "stillborn" appears on a great many records. In a number of cases the preventability of death was made by surmise from very inadequate data. However, in the stillbirth group, if the patient had been seen prenatally by the doctor and then certain procedures had been used, which suggested improper management, the responsibility was assigned to the doctor. If the patient had never been seen by a doctor until labor was well advanced, then the stillbirth responsibility was credited to the patient.

Eighty-five stillbirths (See Table VI) occurred in Gibson County in 1931-33. Of these, sixty-one were white and twenty-four colored.

Of the eighty-five, thirty-eight were considered nonpreventable, twenty-eight preventable, and nineteen were unclassified because of insufficient data. The responsibility for the preventable stillbirths was made with regard to prenatal care, obvious existing conditions such as syphilis or other intercurrent conditions, the management of labor, and early postnatal care. The physician was considered responsible in fifteen cases because of faulty management or error in technique of delivery. The patient was held responsible in eleven cases, usually on the basis of noncooperation, and the midwife held responsible for two cases. Of the total preventable stillbirths, those that were under medical and nursing supervision showed a better result than those not under care in the proportion of 8.4 stillbirths per 1,000 women under care as against 10.9 per 1,000 women not under care. There were two and a half times as many stillbirths

occurring in multiparous as in primiparous women.

*Neonatal Deaths*—There were ninety-two neonatal deaths (See Table VII), that is, deaths occurring within one month following delivery; sixty-six of these were white and twenty-six colored. On the same basis as was used in determining responsibility for stillbirths, there were thirty-six preventable neonatal deaths, forty-eight nonpreventable, and eight unclassified because of insufficient data. The physician was held responsible for sixteen deaths because of inadvised use of operative interference and therapy. The patient was held responsible for twenty neonatal deaths on the basis of lack of cooperation and subsequent care of the infant following delivery. Here again the cases which were considered preventable were in greater proportion among cases not under medical and nursing supervision than those under supervision. Of the total preventable neonatal deaths, there were 11.9 neonatal deaths per 1,000 women under medical and nursing care and 13.3 neonatal deaths per 1,000 women not under care. Among multiparous patients the incidence of neonatal deaths was about two and a half times as great as in primiparous women.

Early medical and nursing care of newborn infants would undoubtedly lower the incidence of neonatal deaths. There were thirty-six infants, or 39.1 per cent, of the entire ninety-two neonatal deaths, who died within the first twenty-four hours of life. Since there were many more deaths within the first three days of life, probably totaling fifty per cent of the entire neonatal deaths, there is no question but that prompt and concerted medical and nursing attention to infants during this time would save many of them.

TABLE I  
MATERNAL DEATHS

| <i>Deaths by Age</i> | <i>No.</i> | <i>Percentage</i> |
|----------------------|------------|-------------------|
| 10-19 -----          | 4          | 20.0              |
| 20-29 -----          | 8          | 40.0              |
| 30-39 -----          | 4          | 20.0              |
| 40 and over -----    | 4          | 20.0              |
| TOTAL -----          | 20         | 100.0             |

*Deaths by Color*

|               |    |       |
|---------------|----|-------|
| White -----   | 11 | 55.0  |
| Colored ----- | 9  | 45.0  |
| TOTAL -----   | 20 | 100.0 |

*Type of Delivery*

|                   |    |       |
|-------------------|----|-------|
| Spontaneous ----- | 5  | 25.0  |
| Operative -----   | 12 | 60.0  |
| Unknown -----     | 2  | 10.0  |
| Not born -----    | 1  | 5.0   |
| TOTAL -----       | 20 | 100.0 |

*Type of Operation*

|                                   |    |       |
|-----------------------------------|----|-------|
| Curettage with tamponade -----    | 1  | 8.3   |
| Abdominal section (ectopic) ----- | 1  | 8.3   |
| Podalic version -----             | 4  | 33.4  |
| Decompensation of breech -----    | 1  | 8.3   |
| Forceps -----                     | 2  | 16.7  |
| Caesarean section -----           | 3  | 25.0  |
| TOTAL -----                       | 12 | 100.0 |

TABLE II

MATERNAL MORTALITY IN RELATION TO BIRTHS

| <i>Incidence of</i>          | <i>Number</i> | <i>Percentage</i> |
|------------------------------|---------------|-------------------|
| Live births -----            | 9             | 45                |
| Neonatal deaths --           | 2             | 22 of live births |
| Stillbirths -----            | 7             | 35                |
| Undelivered -----            | 1             | 5                 |
| Ectopic gestation --         | 1             | 5                 |
| Abortion -----               | 1             | 5                 |
| Questionable pregnancy ----- | 1             | 5                 |
| TOTAL -----                  | 20            | 100               |

TABLE III

MATERNAL DEATHS BY CAUSE

| <i>Cause of death</i>                              | <i>Preventable</i> |                   | <i>Nonpreventable</i> |                   | <i>Unclassified</i> |                   |
|----------------------------------------------------|--------------------|-------------------|-----------------------|-------------------|---------------------|-------------------|
|                                                    | <i>No.</i>         | <i>Percentage</i> | <i>No.</i>            | <i>Percentage</i> | <i>No.</i>          | <i>Percentage</i> |
| Septic abortion -----                              | 1                  |                   | 1                     | 5                 |                     |                   |
| Ectopic pregnancy --                               | 1                  | 5                 |                       |                   |                     |                   |
| Postpartum hemorrhage -----                        | 2                  | 10                |                       |                   |                     |                   |
| Eclampsia -----                                    | 3                  | 15                |                       |                   |                     |                   |
| Pulmonary embolus --                               | 1                  | 5                 |                       |                   |                     |                   |
| Extragenital causes: 3                             |                    |                   |                       |                   |                     |                   |
| Pneumonia -----                                    | 2                  |                   | 2                     | 10                |                     |                   |
| Cardiac decompensation -----                       | 1                  | 5                 |                       |                   |                     |                   |
| Puerperal septicemia --                            | 3                  | 15                |                       |                   |                     |                   |
| Joint causes: 4                                    |                    |                   |                       |                   |                     |                   |
| Placenta previa—puerperal septicemia               | 2                  | 10                |                       |                   |                     |                   |
| Puerperal septicemia—transverse presentation ----- | 1                  | 5                 |                       |                   |                     |                   |



|                      |    |    |    |   |    |    |    |
|----------------------|----|----|----|---|----|----|----|
| Puerperal septicemia |    |    |    |   |    |    |    |
| —ruptured uterus     | 1  | 1  | 5  |   |    |    |    |
| Unclassified         | 2  |    |    |   | 2  | 10 |    |
|                      | —  | —  | —  | — | —  | —  | —  |
| TOTAL                | 20 | 15 | 75 | 3 | 15 | 2  | 10 |

TABLE IV

## MATERNAL DEATHS—RESPONSIBILITY FOR PREVENTABLE DEATHS

| Cause of death                                 | Responsibility |         |         |       |
|------------------------------------------------|----------------|---------|---------|-------|
|                                                | Doctor         | Midwife | Patient | Joint |
| Ectopic pregnancy                              | 1              |         |         |       |
| Postpartum hemorrhage                          | 2              |         |         |       |
| Eclampsia                                      |                | 1       | 1       | 1     |
| Pulmonary embolus                              |                | 1       |         |       |
| Puerperal septicemia                           | 3              |         |         |       |
| Placenta previa — puerperal septicemia         | 2              |         |         |       |
| Puerperal septicemia — transverse presentation | 1              |         |         |       |
| Puerperal septicemia — ruptured uterus         | 1              |         |         |       |
| Cardiac decompensation                         |                |         |         | 1     |
|                                                | —              | —       | —       | —     |
| TOTAL                                          | 10             | 1       | 2       | 2     |

TABLE V

## MATERNAL DEATHS—PRENATAL CARE, PLACE OF DELIVERY

|                                    | Adequate |            | Inadequate |            | No Care |            | TOTAL |
|------------------------------------|----------|------------|------------|------------|---------|------------|-------|
|                                    | No.      | Percentage | No.        | Percentage | No.     | Percentage |       |
| By physician                       | 2        | 10         | 9          | 45         | 9       | 45         | 20    |
| By nurse                           | 4        | 20         | 3          | 15         | 13      | 65         | 20    |
| Place of Delivery                  |          |            |            |            |         |            | No.   |
| At home                            |          |            |            |            |         |            | 13    |
| In hospital                        |          |            |            |            |         |            | 3     |
| Undelivered                        |          |            |            |            |         |            | 1     |
| Unknown                            |          |            |            |            |         |            | 1     |
| Abortion                           |          |            |            |            |         |            | 1     |
| Ectopic pregnancy                  |          |            |            |            |         |            | 1     |
|                                    |          |            |            |            |         |            | —     |
| TOTAL                              |          |            |            |            |         |            | 20    |
| Delivered at home—died in hospital |          |            |            |            |         |            | 3     |

TABLE VI

## STILLBIRTHS

|                | Gibson County | Tennessee | United States Registration Area |
|----------------|---------------|-----------|---------------------------------|
| 1931-1933      | 30.2          | 44.4      | 38.0                            |
| By Color       |               |           | No. Percentage                  |
| White          |               |           | 61 71.8                         |
| Colored        |               |           | 24 28.2                         |
|                |               |           | — —                             |
| TOTAL          |               |           | 85 100.0                        |
| Preventable    |               |           | 28 33.0                         |
| Nonpreventable |               |           | 38 44.7                         |
| Unclassified   |               |           | 19 22.3                         |
|                |               |           | — —                             |
| TOTAL          |               |           | 85 100.0                        |

## Responsibility for Preventable Stillbirths

|                   |    |       |
|-------------------|----|-------|
| Physician         | 15 | 53.6  |
| Patient or family | 11 | 39.3  |
| Midwife           | 2  | 7.1   |
|                   | —  | —     |
| TOTAL             | 28 | 100.0 |

|                | Total | Under Care |      | Not Under Care |      |
|----------------|-------|------------|------|----------------|------|
|                | No.   | Per Cent   | No.  | Per Cent       |      |
| Preventable    | 28    | 10         | 35.7 | 18             | 64.3 |
| Nonpreventable | 38    | 12         | 31.6 | 25             | 89.5 |
| Unclassified   | 19    | 2          | 10.5 | 17             | 89.5 |

| Parity     | Total | White | Colored |
|------------|-------|-------|---------|
| Primiparae | 21    | 15    | 6       |
| Multiparae | 51    | 36    | 15      |
| Unlisted   | 13    | 9     | 4       |

TABLE VII  
NEONATAL DEATHS

|           | Gibson County | Tennessee | United States Registration Area |
|-----------|---------------|-----------|---------------------------------|
| 1931-1933 | 32.7          | 36.2      | 32.0                            |
| By Color  |               |           | No. Percentage                  |
| White     |               |           | 66 71.7                         |
| Colored   |               |           | 26 28.3                         |
|           |               |           | — —                             |
| TOTAL     |               |           | 92 100.0                        |

|                |    |      |
|----------------|----|------|
| Preventable    | 36 | 39.1 |
| Nonpreventable | 48 | 52.2 |
| Unclassified   | 8  | 8.7  |
|                | —  | —    |

|       |    |       |
|-------|----|-------|
| TOTAL | 92 | 100.0 |
|-------|----|-------|

## Responsibility for Preventable Neonatal Deaths

|                   |    |      |
|-------------------|----|------|
| Physician         | 16 | 44.4 |
| Patient or family | 20 | 55.6 |
| Midwife           | —  | —    |
|                   | —  | —    |

|       |    |       |
|-------|----|-------|
| TOTAL | 36 | 100.0 |
|-------|----|-------|

|                | Total | Under Care |      | Not Under Care |      |
|----------------|-------|------------|------|----------------|------|
|                | No.   | Per Cent   | No.  | Per Cent       |      |
| Preventable    | 36    | 14         | 38.9 | 22             | 61.1 |
| Nonpreventable | 48    | 15         | 31.2 | 35             | 68.8 |
| Unclassified   | 8     | 4          | 50.0 | 4              | 50.0 |

| Parity     | Total | White | Colored |
|------------|-------|-------|---------|
| Primiparae | 21    | 18    | 3       |
| Multiparae | 55    | 38    | 17      |
| Unlisted   | 16    | 10    | 6       |

TABLE VIII

## RESUME OF DATA BY COLOR

|                                   |       | White |            | Colored |            |
|-----------------------------------|-------|-------|------------|---------|------------|
|                                   | Total | No.   | Percentage | No.     | Percentage |
| Maternal deaths-----              | 20    | 11    | 55.0       | 9       | 45.0       |
| Neonatal deaths-----              | 92    | 66    | 71.7       | 26      | 28.3       |
| Total births-----                 | 2817  | 2355  | 83.6       | 462     | 16.4       |
| Live births-----                  | 2732  | 2294  | 84.0       | 438     | 16.0       |
| Stillbirths-----                  | 85    | 61    | 71.8       | 24      | 28.2       |
| Women under super-<br>vision----- | 1167  | 1059  | 90.7       | 108     | 9.3        |

|                                                |       |      |      |      |     |      |
|------------------------------------------------|-------|------|------|------|-----|------|
| Women not under supervision                    | ----- | 1650 | 1296 | 78.5 | 354 | 21.5 |
| Maternal deaths per 1,000 live births          | ----- |      |      |      |     | 7.3  |
| Maternal deaths per 1,000 total births         | ----- |      |      |      |     | 7.1  |
| Maternal deaths per 1,000 women under care     | ----- |      |      |      |     | 6.0  |
| Maternal deaths per 1,000 women not under care |       |      |      |      |     | 7.9  |

## IV

## DISCUSSION OF MATERNITY CARE

## A. MEDICAL SERVICE

From the analysis of the hundred-case study, from personal interviews with the physicians, and from the records, certain deficiencies were noted. Their correction should improve the standard of obstetrical care.

Many men have stated that they are not interested in obstetrical practice, and only do it because it is a part of the general practitioner's duty. Consequently, little attempt is made by some men to improve their work in this branch of medicine.

When a complication does arise during pregnancy, labor or the puerperium, frequently a consultant is called who knows little more about the condition than the family physician himself. This same physician would not call his local colleague if he had a surgical case; he would send it immediately to a surgeon. There is little reason why a complicated obstetrical case should not have the same consideration. The day is past when a maternal death should be considered inevitable, although there is no doubt that some deaths are nonpreventable because of unusual existing circumstances. However, the group of preventable deaths would be lowered if there were a closer co-operation between the physician and patient.

The doctor is often careless about making contact with the patient; he is satisfied, for instance, to examine a specimen of urine as the entire care given the patient during the prenatal period, whereas more important details such as physical examination, outstanding abnormal symptoms, blood pressure, and weight of the patient are neglected. It is not always his fault that this custom exists, but every physician could see his patients more often during this period if he insisted upon it, once the contact was

made. Even in this county, the incidence of prenatal care varies from two per cent among some physicians (according to their own statements) to seventy-five to eighty per cent among others. The value of prenatal care is often not realized by the public, but there is no reason why the doctor himself should look upon this important work as unnecessary. There are a number of doctors who consider they have taken good care of a woman if they have been present at the delivery; even then, they may not study the patient carefully from the standpoint of impending complications, and often severe complications do arise quite unexpectedly at this time.

It was pointed out that very few cases received a careful physical examination, and history forms were rarely used during the prenatal period. Perhaps these forms might be provided by the public health department so that every case under medical supervision would have a history. There were many important points during the prenatal period which were forgotten because they were not noted, and this improvement should make for better prenatal care.

Pelvimetry, although not an absolute indicator of disproportion between the maternal pelvis and infant, is a means by which border line or absolute contractions can be recognized. Even women who have previously delivered spontaneously may have difficulty because of a disproportion between a large baby and a previously unrecognized, contracted pelvis. If one has done pelvic measurements, he at least knows whether the patient should be especially watched when she falls into labor or whether the chances are that she will deliver without difficulty. *The only way the occasional complicated case can be found is by doing routine work on all patients with the hope of discovering the complications; rather than to take a chance on "running across" a complicated case without warning.*

In the management of labor, there is no question but that more importance should be placed on the intake of fluids and food.



The patient is losing bodily fluid rapidly, because of increased activity, and easily assimilated foods in the form of fruit juices and sugar will help materially in maintaining resistance of the patient. They should thereby have some effect on lowering the incidence of exhaustion, inertia, and puerperal infection. Probably a general physical examination should be made at the time the patient is first seen in labor; at least, a routine cardiac examination should be done and the blood pressure taken to rule out impending cardiac deficiencies and toxemia.

The preparation of the patient for delivery is important. Enemata given during labor not only stimulate pain but prevent contamination of the field and produce an evacuation of the intestinal tract that would usually not take place otherwise. Shaving and clipping the patient is, perhaps, not so necessary in spontaneous deliveries, but it makes for better preparation of the patient and should insure more thoroughly against infection. Perineal cleanliness during the puerperal period is certainly more effective if the area is shaved.

Analgesics are an important adjunct in the management of labor and are undoubtedly a great help in preventing exhaustion and inertia in the patient, especially in primiparae. The barbiturates can be given when labor is fairly well advanced without causing asphyxiation in the infant. Incidentally, the family is less upset and the doctor has more peace when long labor is aided by sedation. The use of oxytocics has little place in the first and second stages of labor. Inertia is not a common complication of pregnancy, so that pituitrin used even in the second stage of labor may do some damage as the result of a too rapid delivery causing lacerations of perineum, and sometimes cerebral injury to the infant. Certainly in the first stage of labor there is little excuse for its use—except occasionally, perhaps, to induce labor.

Listening to the fetal heart sounds is a very important procedure. The condition of the infant can be determined by this procedure, and in some instances the position of the infant can be determined. One should

listen for them, if possible, especially in prolonged labor and in cases where there is some question of the patient feeling fetal movements.

From the standpoint of infection, there is probably definite harm done in making frequent vaginal examinations. This danger, however, can be minimized by careful scrubbing of the hands, wearing sterile gloves, and by careful cleansing of the external genitalia. Although many men are opposed to rectal examinations, they are helpful, and after one has done a certain number, considerable information can be obtained with less harm to the patient and certainly with time saved for the physician.

Sterile materials during delivery undoubtedly make for a cleaner and safer delivery. It has been suggested that a sterile pack consisting of drapes, towels, gauze sponges, cotton balls, and basins be supplied to the doctor or to the patient by some central station, perhaps the public health department, at a minimum fee. The cost of the average pack, including the materials mentioned, would be about \$2.00. If a moderate rental fee were charged and a rebate made when some of the material was returned, this service should be a great benefit to the doctor and patient, at relatively little cost. The pack could be taken to the home by the nurse, or the patient could call at the office for one shortly before delivery, or the doctor might pick one up on his way to the case. Not only would technique be improved by the use of sterile drapes, but the importance of cleanliness would probably be impressed upon the patient and the family. At least, there seems to be little reason why every patient should not be properly but discreetly exposed for delivery, whether she is protected by sterile covers or not.

The incidence of prematurity as a contributing factor in deaths among newborn infants in the three-year period, 1931-33, was forty-one per cent. Perhaps this incidence could be materially lowered if the physician were able to *order* nursing care for these infants. There is little question but that nursing supervision is a very important part of

the care of premature infants. It is entirely possible that arrangements could be made so that the public health nurses, notified immediately after delivery, could supervise these cases and see that the doctor's instructions were carried out by the family in the special care of premature infants.

In making further suggestions for improved obstetrical practice, from findings in the hundred-case study, it would appear that insufficient postpartum care was given patients both by the nurse and by the doctor. In this small study, there were twenty-three postpartum complications, or an incidence of twenty-three per cent. No doubt some of the cases of so-called "sapremia" and "lochia block" could have been prevented or alleviated before they caused serious complications if patients were seen routinely during the first three or four days. Probably the most frequent time for an infective genital complication to occur is on the third or fourth puerperal day, so that visits from the second day on for several days would coincide with the inception of these conditions.

Even though some deaths apparently are not preventable, the physician can do much to prevent the large incidence of temporary or permanent complications which exist. Morbidity has come to be interpreted in terms of an infective process manifested by a rise in temperature. It should be considered in a much broader sense; that is, whether or not the patient has any complication, febrile or nonfebrile, during or following delivery. Such things as lacerations, hemorrhage, relaxations are all morbid conditions and may materially invalidate a patient if they are not prevented or treated. Also, much could be done to alleviate derangements caused by bearing children if women were examined at the end of the puerperium, and appropriate advice given for any existing pathology.

Final examination is neglected probably for a number of reasons. In the first place, the physician does not always request that the patient appear for examination. The patient does not think it is necessary, even if she is instructed to do so, to return for final checkup. Many more final examina-

tions could be made if the physician were more emphatic in his suggestion that the patient have one, even to the point of enumerating some of the sequels of childbirth. It has been found that a written note given to the patient, stating when she is to return to the doctor's office, will bring in a great many patients. If she has had nursing care, the nurse should make a special effort either to have the patient go to the doctor or else arrange to have her taken. Further education of the public in the importance of care throughout pregnancy and the puerperal period would bring many to realize why they should be seen by a physician at the termination of the puerperium.

The plan which is being used by a number of men in the county seems to be an excellent way of getting the cooperation of the patient; that is, charging a flat fee for prenatal care, delivery, postnatal care, and a checkup examination. This should bring many more patients routinely under the doctor's observation than any other method that could be suggested. Obviously, it would take some time to make this a general custom, but a county medical society could do much in making it a popular method of charging for obstetrical care, if every physician would adhere to the rule. Even if the physician only included a final examination in his delivery fee, he would not lose by it, for many patients will be found to have complications which will necessitate treatment subsequent to the final examination. These gynecological visits, of course, would not be included in the delivery fee, but would be a source of remuneration not realized by many physicians now. In any case, no doctor should ever fail to examine a woman if she has come to his office for such a checkup. Many women who have had uncomplicated deliveries will show some abnormalities such as erosion of the cervix or a retroversion of the uterus.

During the past four years, a number of physicians in the county have had the advantage of taking postgraduate courses through fellowships given by The Commonwealth Fund. These courses have covered a fairly general range of medicine, and the



criticism was offered by several men that insufficient time was spent on any one branch. Since so large a percentage of medical practice is confined to obstetrics and pediatrics, it might be well to consider the plan of taking these subjects as special postgraduate courses. There is no question but that a longer period of association with men in the active practice of obstetrics and pediatrics would influence one's attitude toward these very important subjects. Too little time has been given to obstetrics in the medical schools.

These suggestions have been made because certain deficiencies seem to be present in the practice of obstetrics in Gibson County. Many of them are recognized by the physicians, but little has been done about them for the reasons already mentioned in discussing the difficulties under which the practice of obstetrics is carried on. Many of the suggested procedures have been tried and carried out successfully in other places. It is the desire of all of us to do anything which may improve the status of the maternity case.

#### B. NURSING SERVICE

The nursing service could be improved in various ways. Apparently, some patients reported to the nurse by the doctor are for some reason or other not seen by the nurse. It would be well to keep a list of these cases in the public health department; if they cannot be seen, a report should be sent to the doctor, stating the reason. There is no doubt but that the doctor does not report all the cases he thinks he does. Some measure to overcome this deficiency should be arranged, such as having the nurse call the doctor at stated intervals. This plan is already in vogue to some extent.

A good service could probably be rendered by arranging to have the nurse plan her visits so that she would see the patient shortly before the time of delivery, when complications often arise; and—just as important—would make a visit on the first or second day post partum so that she could get the patient and her baby well started from a nursing standpoint. Such details as care of the baby (especially the prema-

ture infant), instruction in care of the external genitalia, care of the breasts, or any other orders which the doctor wanted carried out immediately could then be explained to the patient by the nurse. To put this into effect the doctor would have to call the nurse immediately after a delivery, or else there could be a daily telephone service from each nurse to the group of doctors whom she serves. She could then see that the routine previously given her or the patient by the doctor was carried out. It would be especially important for the doctor to report to the nurse those patients whom he will not see after delivery, so that these patients may have at least some supervised postpartum care.

The nurse might use her influence to a greater extent in getting patients to go to the doctor for a final examination. She instructs them to go to the physician at an appropriate time, but many do not go. Perhaps, arrangements might be made with the doctor to see a patient at a certain time. Transportation might be provided for those who have no means themselves, either by the nurse or by some local lay committee. Again, it should be stated that if a woman does appear for a final examination the doctor should be conscientious enough to do it.

Further effort should be made on the part of the nurse to obtain more routine blood specimens for Wassermann examinations. The incidence of this examination has increased yearly, but in 1933 only seventy-eight per cent of the total cases under nursing care had Wassermann tests done. It should not be confined to the prenatal cases but should be done on those patients seen only after delivery as well.

Several physicians suggested in personal interviews that the institution of obstetrical bedside nursing would very materially improve the nursing service in the county. There are times when a physician is unable to remain with a patient during labor. If he found conditions satisfactory, but did not care to leave the patient alone, he could call a nurse to remain with the case in his absence. Some of the handicaps which physicians find troublesome at delivery would

certainly be obviated by having a nurse assistant present, not only to prepare the patient for delivery but also to give an anesthetic, if necessary. This service might be added only for emergency and complicated cases, if the cost of extending it more widely proved prohibitive. It is, at all events, worth considering.

#### C. HEALTH DEPARTMENT

Not every patient under nursing supervision had a Wassermann examination. The number of positive Wassermans increased each year of the period studied: seven in 1931, twelve in 1932, and thirteen in 1933; or a total of thirty-two in the three-year period. Only eight of these cases received treatment, though they were all under nursing supervision. The public health department has had antiluetic clinics for some time, and most of the cases in the county are probably referred to these clinics for treatment. One would think that more than twenty-five per cent of pregnant women having positive Wassermans, under nursing supervision, would have been treated. There must be some deficiency in following those cases and a special effort should be made to have more of them under treatment.

It was suggested that sterile obstetrical packs be made for distribution at time of delivery. The public health department would seem a logical organization to undertake the preparation of these packs. Sterilizers could be installed in the department offices at very little increase in running expense.

The records in the health department, although improved over the past years, were found to be often inaccurate and incomplete. It would seem that the health officer should check each death certificate to ascertain if the diagnosis of the cause of death seemed sufficient. If there were any question as to the diagnosis, the physician who made out the certificate ought to be consulted in an effort to make the diagnosis clearer.

Although it is very difficult to obtain the record of every birth certificate, some method should be developed so that very

few would escape being recorded. Perhaps monthly calls on physicians and midwives might bring some delinquent certificates for filing. *Doctors could do much* to improve this condition if they would send records to the department regularly and immediately.

Very little has been done in the organization of classes either among prenatal women or among any other group of women for the advancement of further knowledge in the care of the expectant mother. Some concerted effort should be made to teach such groups, either by nurses or with lectures by physicians, how pregnancy can be safeguarded. Such lay groups could also assist in reporting cases not under medical supervision to the nursing service, so that ultimately they would come under the care of a doctor, and could also assist in making supplies, especially for the use of indigent cases.

The midwife problem should also receive consideration. There is no question but that a closer check should be made on the ability of midwives, and those who do not come up to certain standards eliminated if possible.

### V

#### RECOMMENDATIONS AND CONCLUSIONS

##### A. RECOMMENDATIONS

##### I. Medical practice.

1. Special postgraduate work in obstetrics and pediatrics.
2. Greater attention to prenatal study of patient.
3. Use of history forms.
4. Study of patient's condition at inception of labor.
5. Use of sterile materials for delivery obtained from central supply place.
6. Cautious use of operative procedures for delivery, when they are necessary.
7. Intelligent consultation upon complicated cases.
8. Routine postpartum visits in the early puerperium, reporting delivered cases to county health department nursing service immediately.
9. Treatment of morbid cases.



10. Final examination to determine condition of patient at end of puerperium.
11. Reporting as correctly and as soon as possible all births and deaths.

## II. Nursing service.

1. Arrangement of visits to patient at appropriate times, especially just before and after delivery.
2. Notify physician of each visit to patient; and notify him if any patient cannot be seen.
3. Closer cooperation between doctors and public health nurses so that nurses will be notified of delivery immediately, particularly in cases of complication, or when infant is premature or is not doing well, or in cases which the doctor cannot follow.
4. Attempt to obtain higher percentage of blood Wassermanns on prenatal and postnatal cases under nursing supervision.
5. Endeavor to have all luetic cases under nursing supervision treated by doctor or public health department.
6. If possible, institution of nursing service at time of delivery, with special reference to complicated cases.

## III. Public health department.

1. Installation of sterilizer for preparation of sterile materials for doctors.
2. Preparation and distribution of history forms for physicians' use at minimum cost.
3. Improvement in recording of births and deaths.
4. Checking any questionable causes of death with physician.

5. Treat all possible pregnant luetic cases who have been contacted not only before but after delivery.
6. Supervision of midwives.

## IV. General recommendations.

1. Education of the public through lay organizations of the importance of care during pregnancy. Physicians and public health department made responsible for such teaching.
2. The medical profession and organizations with which it is allied must assume responsibility for improvement in obstetrics in whatever way this can be brought about.
3. Similar studies made by organized medical groups in all localities might prove of stimulating value.

## B. CONCLUSIONS

The present status of medical and nursing care for obstetrical cases in Gibson County was studied.

Maternal and infant deaths were studied in an effort to determine how many of them were preventable. Responsibility for such mortalities was also theoretically evaluated.

Prenatal care was shown to have definitely decreased the incidence of maternal and neonatal mortality and stillbirths.

Operative interference was shown to have preceded sixty per cent of the maternal deaths.

Improved care during labor, delivery, and the puerperium should decrease morbidity and mortality.

Apparent deficiencies in both medical and nursing services were discussed, and improvements were suggested.

## LOBAR PNEUMONIA (WITH REPORT OF CASES)\*

S. J. FENTRESS, M.D., Goodlettsville

SINCE the time of Hippocrates and Aretaeus this disease has been known. At the end of the seventeenth and beginning of the eighteenth centuries Morgagni and Valsalva made many accurate clinical and anatomical observations on the disease, but our modern knowledge dates from the time of Laenec, in 1819, whose masterly description of the physical signs and morbid anatomy left little for subsequent observers to add or modify. The cause of pneumonia was not known until 1881, when Pasteur and Sternberg, independently, noted the occurrence of small diplococci in the sputum of patients with lobar pneumonia. In 1884, Fraenkel definitely proved that the pneumococcus was the exciting agent by demonstrating its frequent occurrence in lobar pneumonia. He also decided its pathogenic and biological characteristics and gave it the name by which it is generally known. His findings were confirmed by Weichselbaum, who identified the pneumococcus in the blood and tissues in a large series of cases. Lobar pneumonia is one of the most serious infectious diseases with which we have to deal, and it is difficult to arrive at any accurate idea of the incidence of the disease, but the figures on mortality rates can be looked upon as reasonably reliable. In the registration area of the United States in 1917 there were 112,821 deaths from pneumonia, a rate of 150.5 per 100,000 population. Of these deaths 65,438 were due to lobar pneumonia, 37,947 to bronchopneumonia, and 9,436 were unclassified. These figures indicate that during the decade extending from 1911 to 1920 the death rate remained fairly constant, excepting 1918—the year of the worst influenza epidemic—when it was approximately doubled. In Tennessee, from statistics secured from reports of the State Health Department, an average for five-year period, from 1929 to 1933, we

find in cities an average death rate of 100.8 per 100,000 population for lobar pneumonia—59.9 per 100,000 for bronchopneumonia. In counties we find a five-year average for lobar pneumonia, 68.1 per 100,000; bronchopneumonia, 58.0. Our knowledge of the pathogenesis of lobar pneumonia has reached a point that offers unusually promising angles for continued attack. Wide dissemination of the advances in knowledge of pneumonia are necessary since most practitioners see relatively few cases during the course of a year.

Sutliff and Finland state that the number of cases of lobar pneumonia reported annually in Massachusetts is from 4,080 to 5,544.

The study of pneumonia in Massachusetts, which is now in its fourth year, was extended into the area around Lawrence, December 18, 1933, with headquarters at Lawrence General Hospital. Seven local physicians have been designated pneumonia "collaborators," who, when called by other physicians in suspected cases of lobar pneumonia, will undertake to have sputum or other material from the patient typed at once. An annual appropriation of \$36,200.00 for three years with a tentative agreement of support for an additional two years was granted by the Commonwealth Fund of New York in 1931. Since that time the experiment has been projected into seventeen selected areas of the state. The appropriation provides the cost of organizing the area, producing and distributing the serum, maintaining a typing laboratory, and training technicians from the outlying laboratories in the state in pneumococcus typing. The primary objective is to establish, if possible, whether or not pneumococcus serum is a remedy for the treatment of lobar pneumonia caused by certain types of pneumococci. If this can be determined, it is hoped that, when the Commonwealth Fund withdraws its support, the state will take over the produc-

\*Read before the Middle Tennessee Medical Society.



tion and distribution of bivalent antipneumococcus serum for cases of type one and two lobar pneumonia and supply it to all physicians throughout the state without cost.

Smillie and Leeder, investigating the spread of pneumonia, have studied this problem by taking cultures of the nasopharynx in 364 contacts of sixty-four patients with lobar pneumonia due to types one and two pneumococci. The results indicate that about 20 per cent of the immediate family contacts of the patients harbored the homologous strain of pneumococci. Hospital contacts were rarely infected, however, and the Boston investigators therefore believe that it is justifiable to treat cases due to types one and two in open wards of the general hospitals. The evidence studied suggests that there is some additional factor other than simple contact which determines the transfer of type one and two pneumococci from a patient with lobar pneumonia to contacts. Possibly cold may be one of the factors responsible. It was apparent that carriers of type one and two pneumococci may continue as carriers for a considerable period without giving rise to pneumonia in either the carrier or his contacts and without producing a second group of carriers. Much stress has been placed on the early diagnosis of lobar pneumonia, especially since the advent of specific serum therapy with a view to improving the ability to make early diagnosis and follow the course of the infection.

Graeser, Wu, Ching, and Robertson studied forty cases of lobar pneumonia by means of serial daily roentgenogram and physical examination. Comparison between these methods showed the roentgenogram to be superior in detecting the early lesion and disclosing the extent of the process while the consolidation was developing. At the stage of maximum consolidation, however, the two methods were about equally informative. These scientific studies in selected areas is surely of major importance, but we are still meeting with problems in rural sections that are too seldom

in the selected areas promoting prophylaxis and lowered mortality. For example, I have chosen to report some interesting cases it has been my privilege to see during the past year that I may emphasize some of the problems met with in rural communities. The cases I shall mention were unusual and are called central, latent or hilum lobar pneumonia, four of which were in children under five years of age, the other a married woman near middle life, whose case I wish to report more or less in detail, but before going into the special case report I would like to say that two of these children were boys, age 2 and 4, in the same family, there being about six or eight weeks between onset. Clinical symptoms of both were very similar and physical signs from beginning indicated pneumonia, but we could not make a definite diagnosis until the sixth or seventh day of their illness when consolidation was definitely made out. Both of them had empyema complicating with rib resection and drainage. The other two cases were girls, ages 14 months and 3 years, the child 14 months of age ran a more stormy course—high temperature, fast breathing, cyanosis, extreme restlessness, practically no cough, and not until after I had three consultants and finally X-ray, on about the ninth day of her illness, showed unquestionable spot near hilum of lung. She made an uneventful recovery in spite of the fact that her mother had spent one year in the Davidson County Tuberculosis Hospital and had her conception from a visit home on leave from hospital—the fourth child, three years of age, was not unlike others and had empyema, complicating about four weeks from onset. She was up in the house for about one week before fluid developed, had rib resection and drainage, and, like the other three, made an uneventful recovery. Now neither of these families felt that they could afford X-ray examination or hospitalization, but in the end three of them of necessity had to be hospitalized for three weeks or more.

#### CASE REPORT

Mrs. T., age 50, school teacher, mother

of three children, youngest 18, had appendectomy following rupture at age of 40. At 45 had radium for profuse uterine hemorrhage. No menstruation since. For the past year has complained of back pain and occasional night sweats and constipation. Otherwise she enjoyed good health until about the fifteenth of September, 1934, when she developed an acute upper respiratory condition or acute cold which grew progressively worse until I was called on September 20. My findings, plus the above history—temperature 104, pulse 110, respiration 30. She complained of having had three rigors during the day. No distinct chill. No pain in chest, but pain in back over right kidney, radiating downward and forward; throat acutely inflamed; stuffiness in each side of nose; aching limbs and joints; was very tender in region of right kidney. I felt, from her history of back pain and urinary disturbance with constipation, that she had pyelitis complicated by acute influenza. On night of the twentieth she had magnesium sulphate and sodium bicarbonate, which was repeated next morning with good results. Phenacetine, caffeine, and aspirin every two hours for three doses, then every four hours day and night. Serenium, two tablets three times a day, her temperature fluctuating from 100 2 5 to 103 3 5 each day. Clinically she seemed to grow worse from day to day with no different findings, and on September 24 we had consultation with no change except she complained of such profuse perspiration. Codeine and aspirin and carbonate creosote, ten drops every four hours, was substituted for phenacetine and caffeine. Urinalysis on this date: specific gravity 1016, turbid, acid, no sugar, trace of albumen, few pus cells, no blood, no casts. We decided to continue watching for lobar pneumonia. I continued twice daily visits—morning and evening—had nurse register temperature every three hours and kept ice bag to head. On September 26, when she was asked to get deep breath, she would get a hitch or halfway cough, so to speak, but she has not coughed yet. On the morning of September 28 I found a small consolidation in lower lobe

of left lung posteriorly—no rales, cyanosis or dyspnea—just extremely toxic. About this same date she developed marked abdominal distention which persisted for about ten days which was corrected by use of the following treatment:

Each night and morning we gave her  $\frac{1}{2}$  cc. pituitrin and in twenty minutes another  $\frac{1}{2}$  cc. was given, followed immediately with high enemas of sweet milk and Karo syrup of each one pint.

Her heart was checked twice daily, and only on two days did her heart show any change, and in addition to her whisky and caffeine she had coramine, 1 cc. hypodermically at night and morning, for about two or three days. Her blood pressure dropped from 128 80 to 122 70 and remained so. On October 9, after abdominal distention had persisted for a week or more, it was deemed wise to rule out typhoid. Blood findings showed hb. 75 per cent, RBC 4,200,000, WBC 22,400, Pmn. 85 per cent, lymphocytes 15 per cent. Her temperature hit normal on the morning of October 7, but continued to have afternoon rise to 100  $2\frac{1}{5}$ . On the morning of October 16 we found that she could not void her urine, having complained the day before of her urine being so extremely offensive. We emptied her bladder by catheterization. Specimen gave the following: specific gravity 1020, turbid, acid, no sugar, albumen 2 3 plus, pus 2 plus, blood 3 plus, and occasional hyaline casts. She was given  $7\frac{1}{2}$  grains urotropin every four hours in glass of water. Urinary symptoms disappeared and she resumed her work at school November 18, 1934.

Many pages could be written about predisposing causes—exciting causes, prophylaxis—general care and treatment of lobar pneumonia, but feeling that we are generally agreed on general management and treatment I would like to refer briefly to some newer treatments.

In A. M. A. Journal of March 24, 1934, a London correspondent writing on serum treatment of lobar pneumonia says:

“Following the great amount of work on the serum treatment of pneumonia in the



United States, the Medical Research Council has assisted an extensive inquiry in the hospitals of this country during the last three years. This was placed under the control of the therapeutics trial committee of the council. Typing was generally done on the fresh sputum and lung puncture was rarely used. Serums of types I and II were prepared and standardized according to the Felton units current in the United States. It was given intravenously as early as possible. If the infecting pneumococcus could be typed without many hours' delay the appropriate serum was given after this had been done. Otherwise a preliminary dose of 20,000 units repeated every 8 hours or at least twice a day. If no improvement was found after forty-eight hours treatment it was generally found useless to continue the serum. The total dosage varied from 50,000 to 120,000 units. Type II cases seemed to require a larger dosage than type I. After the fifth day it was generally felt that serum had no further useful action.

"The following conclusions are drawn:

"Concentrated antiserum for type I pneumococcus reduced the fatality of type I cases of lobar pneumonia in persons between the ages of 20 and 40 but appeared to have little if any effect on older persons (from 40 to 60). It also seemed to reduce the average duration of the fever. Similar results were obtained when type II antiserum was used in type II lobar pneumonia. Immediate dangerous serum reactions were rarely seen, but one or two lots of a particular concentrated mixed serum did cause rigors and collapse. The benefits were not so marked as to make it desirable that all severe cases of lobar pneumonia, irrespective of the type of the infecting pneumococcus, should be treated with type I and type II antiserum on the chance that they might be typed as soon as possible, so that the appropriate serum may be used. The use of serum is not recommended except under conditions in which typing can be obtained. If accurate typing can be done in five or six hours, serum should be withheld until the type is known and the 20,000 Felton units given. But if more time is required for typing, a preliminary dose of 20,000 units of both

types should be given and the corresponding serum continued when the type is known. The first injection should be made slowly and cautiously into the vein, 1 cc. being introduced in a minute or two and the total being injected in from ten to fifteen minutes. If an unfavorable reaction occurs, 0.5 or 1 cc. 1:1,000 epinephrine hydrochloride should be injected subcutaneously."

An article in *A. M. A. Journal* of June 9, 1934, by Behrend and Cowper on artificial pneumothorax in the treatment of lobar pneumonia says:

"In 1921 Friedemann, a German clinician, reported favorably on the treatment of lobar pneumonia by artificial pneumothorax, in a series of seven cases. In the same year David reported six cases similarly treated with good result. Two years later Schottky reported a single case successfully treated. Interest in the procedure waned then, or the preliminary articles received scant attention, for not until 1928 does further literature appear on the subject.

"A group of pediatricians then borrowed the idea but used it only in cases of pneumonia characterized by abnormally continued fever showing intrapleural collections or bronchiectasis. They advised against its use in acute pneumonias, mainly because they felt that most children recover from the disease with conservative treatment. Ibrahim, Duken, Jahr, Neumann, and Klotz reported 17 cases of childhood pneumonia with protracted fever in which artificial pneumothorax was used, generally with good result and with only 3 deaths.

"In an excellent article on the subject of the treatment of lobar pneumonia in adults by artificial pneumothorax, Coghlan reported 6 cases with one death, which was attributed in part to an error of judgment in the amount of air injected. Coghlan was most impressed by the ability of artificial pneumothorax to precipitate a crisis and the prompt relief of pleuritic pain which followed the separation of the parietal from the visceral pleura by air. After the publication of Coghlan's work Guadarrama, Li, Anderson, Perlroth, Topercer reported good results with this new form of therapy.

"Lately Leopold and Leberman have written a paper on the effect of artificial pneumothorax on lobar pneumonias experimentally produced in dogs. Of 18 animals treated, 3 died. Of 18 dogs untreated, 5 survived and 13 died.

"Stimulated by the appearance of the article by Coghlan, we decided to apply it clinically to a series of patients at the Philadelphia General Hospital following the suggestion of Dr. William Egbert Robertson and with the approval of our respective chiefs of service.

#### THEORETICAL ASPECTS

"When acute inflammation occurs in a part of the body that is functionally or anatomically movable, experience has taught that the primary treatment of the affected part is rest. We may cite, for example, the splinting of the joint in acute arthritis, the immobilization of the extremities in cellulitis, and the strapping of the chest in pleurisy. The object is to supplement by mechanical means the natural demands of the organism for rest.

"Lobar pneumonia furnishes an excellent example of acute inflammation in an organ whose function requires almost constant movement. Attempts of the body to limit motion of the lung by decreased expansion and shallow, frequent respirations cannot be too successful. The introduction of air into the pleural cavity by artificial pneumothorax furnishes a mechanical aid that admirably accomplishes the desired result.

"But rest is not the only benefit that theoretically derives from the use of artificial pneumothorax. When acutely inflamed pleural surfaces are separated, the pain formerly caused by every respiratory excursion disappeared. The patient is able to breathe normally, even deeply, without discomfort. This allows the well lung on the unaffected side to expand to capacity, permitting more complete oxygenation of the blood flowing through it. In consequence, cyanosis is diminished.

"Most recent experimental studies indicate that artificial pneumothorax causes a decrease in the amount of blood circulating in the collapsed lung. This is still a contro-

versial point. However, Corper, Simon, and Rensch have rather conclusively shown that the blood flow through the collapsed lung is gradually decreased. These observations are corroborated by Dock and Harrison, who found that within a few hours after the initiation of artificial pneumothorax from 52 to 58 per cent of the total blood flow passes through the collapsed lung but that within three days this falls to from 9 to 18 per cent. It follows, then, that there will be decreased absorption from the diseased side and a decrease in the amount of unoxygenated blood appearing in the general circulation.

"Lymphstasis with diminution of absorption of toxins has long been held largely responsible for the beneficent effect of artificial pneumothorax in pulmonary tuberculosis by Riviere, Warnecke, Mariette, Gardner and others. It doubtless functions in a similar manner in lobar pneumonia. The importance of this fact cannot be underestimated when it is recalled that almost all deaths from lobar pneumonia are due directly or indirectly to toxemia.

#### SELECTION OF CASES

"Patients treated at the Philadelphia General Hospital are almost without exception of the underprivileged class. Many come to the wards with a history of alcoholism, exposure or malnutrition, and it is not unusual to see persons with frank lobar pneumonia walk into the receiving ward to apply for admission. The mortality in this type of case must of necessity be high. From November 1, 1933, to January 1, 1934, there were 107 male patients admitted with lobar pneumonia and subsequently treated with various supportive and nonspecific measures. Of this number 47, or 43.9 per cent, died. During the same period 34 women were admitted, with 18 deaths, or a mortality of 52.9 per cent. The combined mortality of men and women was 48.4 per cent. The mortality among the patients treated with artificial pneumothorax was 18.1 per cent. We are aware that it is impossible to draw conclusions from so small a series of cases, but we do feel that the



figures here presented are interesting and highly suggestive.

"Eleven cases provide the clinical material on which this report is based. The 11 cases presented physical signs of unilateral lobar pneumonia involving one or more lobes. When the patient's condition permitted, the diagnosis by physical signs was checked by roentgenographic study.

"No effort was made to select patients who looked as if they might or might not get well with or without benefit of treatment. Pneumothorax was induced at various stages of the disease and the first injection of air was given as early as the second day of disease and as late as the eleventh day. Results tend to show that the time of induction is not a factor of great importance. As in the serum therapy of pneumonia, treatment should be instituted as soon as a diagnosis is definitely established."

#### CONCLUSIONS

1. Eleven patients with unilateral lobar pneumonia were treated with artificial

pneumothorax to compress the affected lung, with two deaths. Neither of these fatalities could be directly attributed to the pneumothorax.

2. We believe that collapse therapy is a rational form of treatment of lobar pneumonia, based on sound surgical principles.

3. That lung tissue affected by lobar pneumonia can be compressed by air has been shown clinically by roentgenograms and at autopsy.

4. Artificial pneumothorax relieves the pain of the pleurisy that frequently accompanies lobar pneumonia.

5. It is possible to induce a critical fall in temperature by artificial pneumothorax.

6. We believe that artificial pneumothorax is neither a "cure-all" nor a "therapia sterilisans magna," but it has shown itself to be a valuable adjunct in the treatment of lobar pneumonia and even, we feel, a lifesaving measure in some cases.

7. We have seen no complications directly attributable to the procedure.

## PARALYTIC ILEUS\*

W. A. BRYAN, M.D., Nashville

THE tragic effects of paralytic or adynamic ileus are too common knowledge to the abdominal surgeon and not unknown to the practitioner. To see a simple operation, or remote or close injury, some purely medical disease, or obstetrical case, complicated and often terminated by this condition is a sad but common experience.

The mechanism of paralytic ileus is not understood. One might almost exhaust our knowledge of its etiology by saying that it is due to a disturbance of the physiology of the intestine. Even that is saying much, for intestinal physiology is manifold. The elements apparently entering into the process are primarily the musculature of the intestinal wall, its nerve supply, its blood supply. These combined in the process of peristalsis. Another element serving as a causative factor is the gas producing capacity of the intestines. This we are prone to accept as a matter of fact because it is a normal process. How can the intestines empty, or filled, produce the amount of gas they do and how can they produce it so rapidly? If this were known, and if it could be controlled, perhaps the most dangerous feature of ileus would be eliminated. Gas production in ileus is secondary in sequence, but early assumes primary importance.

If the musculature of the gut be damaged in such degree that it cannot respond to normal or artificial stimuli, and if gas forms and fills this crippled segment, ileus results. If the circulation nourishing the intestine is sufficiently crippled the musculature obviously must fail in peristaltic function, though not in gas formation. If the parasympathetic nerves are paralyzed or sufficiently crippled the stimulus to contraction is lost. If the sympathetic nerves are stimulated so as to overcome the contractile stimuli of the parasympathetics then stillness, silence, distention ensue, and ileus

is established for a time in some degree. The sympathetics are supposed to assume this role actively at times for the purpose of enforcing rest upon the intestine while repair from certain injuries, traumatic or toxic, may occur. It would not require a great stretch of imagination to think that if the damage done were great enough this active function of the sympathetic nerves might hold the gut quiet until the distention from accumulated gas made reestablishment of peristalsis impossible.

If any one of the above factors can stop peristalsis certainly any combination of them can do so more certainly and more effectively. It is obvious too that none of them can produce ileus into advanced stages without gaining the help of others. For as the distention increases from whatever cause, the circulation in all abdominal viscera is depressed necessarily and nutrition to muscles and nerves alike is impaired. Only the gas forming capacity seems not to be impaired.

What calls this mechanism into action? Remote factors and near ones have the power to do it. They may be toxic, they may be traumatic. Yet ileus sometimes comes with no explainable cause. Undoubtedly more cases arise in connection with abdominal disturbances, peritonitis, especially perforative, unduly prolonged exposure of the peritoneum, especially visceral, to the cooling, drying influence of the atmosphere, traction on mesenteries, rubbing the peritoneum, forcing abdominal packs too firmly into the cavity; mesenteric embolism and thrombosis, and torsion of the mesentery or injury to other organs than the intestines.

It is unnecessary to discuss the clinical features of ileus in detail. All know that the further it advances the more difficult it becomes to treat. Therefore, it follows that in lesions where ileus is likely to arise the first suggestion of its advent should, if possible, determine immediate action for relief of its pathologic cause. Whatever may

\*Read before the Middle Tennessee State Medical Association, November 10, 1934.



have justified delay up to this point, nothing can justify it further, unless perchance it be some other hopeless lesion that renders the hope of cure impossible. The appearance of the patient is so characteristic that all well experienced in the treatment of general diseases should recognize the plight of the patient. It may be fair to state here that there is no place in diagnosis of diseases of the chest where the stethoscope is more serviceable to physician and patient alike than in ileus. In the chest diagnosis is made chiefly by what is heard; in ileus by what is not heard. Silence is the worst thing we can get in our bellies.

There are three conditions of the abdomen in which auscultation is especially useful: spastic ileus (enterospasm), paralytic ileus, mechanical obstruction. In severe spastic conditions peristalsis is reduced or absent; and there is associated constant pain; the abdomen is never distended. An adequate (meaning large) dose of atropine should relieve the pain. In paralytic ileus, if pain is present, it should be constant and the abdomen silent. There is distention which gradually increases. In mechanical intestinal obstruction the pain should be remittent or intermittent, recurring at rather definite intervals, associated with increased noises in the abdomen so loud that they can be heard by the patient himself. The noise is loudest at the end of each painful period and subsides coincidently with subsidence of pain. In complete obstruction there is distention unless the obstruction is too high. In obstruction peristaltic waves can frequently be seen in moving patterns over the abdominal surface; in ileus the patterns may be visible, but they do not move. There is an old saying that in intestinal obstruction the patient vomits all over the bed, while in adynamic ileus he vomits only over his chin. When mechanical obstruction has reached the stage of exhaustion the intestine becomes paretic and it is impossible to distinguish ileus from obstruction. It makes no difference from the patient's standpoint, for to him both are obstruction, both are fatal, both are surgical, and while he may know you use two words he knows and can know no dif-

ference in their meaning. This is mentioned because every now and then a physician refers a patient as a case of obstruction, and the surgeon inadvertently calls it ileus without explaining that this too is obstruction. The truth of the matter is that ileus can progress only to a certain state of tension when it acquires mechanical obstruction at the termini of numerous loops by angulation and compression. This is the reason enterostomy is of no avail in the treatment of advanced ileus; it allows escape of contents from the opened segment only. The gas from adjacent loops cannot escape by the buckled tube.

Prevention of adynamic ileus is more satisfactory than treatment for obvious reasons. Unfortunately, it frequently is present when the patient is presented for treatment, and apparently in our present state of knowledge it is impossible to prevent it altogether in surgical patients whether abdominal or general, and in certain non-surgical conditions it seems that we know of no means that will prevent it, for instance, in pneumonia, in obstetrics, and in injuries, especially those affecting the lower thorax. Prevention in abdominal operations can be largely effected by avoiding unnecessary damage to the abdominal contents from every source. The usual means by which such damage is done are exposure of large areas of peritoneum, especially visceral, to the atmosphere unnecessarily long. This allows drying and cooling of the surface, both of which are generally thought to favor ileus; trauma to the viscera by compression or rough manipulation; traction on the various mesenteries; catching and compressing the intestine against the inner surface of the abdominal wall by retractors carelessly applied; diffusion of infection present in cases of peritonitis or the establishment of peritonitis by careless technic or puncture or rupture of infected cavities; use of excessive abdominal packs forced into the peritoneal cavity; imperfect anesthesia which necessitates continual replacement of the intestines escaping through the operative incision. It is helpful to bear in mind that the group of causes given above can be classified into two groups—infective

and noninfective—and that the noninfective group is largely, if not altogether, of the nature of trauma in some form.

There are other preventive measures probably of very great worth, but since they are useful in treatment of the attack of ileus, as well as in its prevention, they are given under active treatment of the attack. Attention will be called to their use in prevention unless this use is obvious from the nature of the treatment.

The treatment of ileus reduced to its simplest form must accomplish the escape of gas from the intestines and prevent the excessive formation of it, one or both. The usual methods for this purpose are directed exclusively to the former item. This is accomplished by the use of colon tubes, enemas, such as soapsuds, milk and molasses, alum and, as some have suggested, the vomitus of the patient. Robert Meyer-Wildisen, of Lucerne, in the 1933 volume of the *Zentralblatt fuer Chirurgie*, publishes what he conceives to be an improvement on the above plan inasmuch as he uses it as both prophylaxis and treatment. He dilates the sphincter and at the end of every abdominal operation and inserts a rectal tube, claiming that the subjective state of the patients, the reduced pain in their wounds, the shortened period, and diminished amount of postoperative vomiting justify and warrant the employment of this simple and harmless treatment which he credits to Vogel. There would seem to be no warranty for the dilation of the sphincter unless the rectal tube were soft enough to be collapsed by a tightly contracted sphincter.

The employment of drugs capable of causing peristalsis is now comparatively an old method of treatment. The fact that we have constantly shifted from one formula to another suggests either that this plan of treatment is not satisfactory or that there is objection to the individual drug, physostigmine, eserine, pituitrin. Now we have pitressin and prostigmin (dimethykarbaminsaturesterdes m-oxyphenyltrimethylammoniummethylsulphate). Their fate will probably be disappointing, though less so on account of reduced collateral action, as

have all the others. It is certain that the gut may be so damaged from the beginning or become so in the course of the ileus that it is beyond the influence of these drugs or any therapy. If this stage has not been reached it is reasonable that benefit may be obtained in the noninfective cases. In ileus complicating peritonitis, the approved plan of treatment, based on all that we know of the behavior of acute infections, is rest of the inflamed tissues. This stands first and best. Rest has been considered even more important in peritonitis on account of the necessity to avoid spread of the infection through a large unrestricted cavity. Witness Ochner's plan of treatment, the avoidance of purgation in appendicitis. Peristalsis moves the intestines, the intestines are covered with infection, movement scatters the infection, the inflammatory process spreads, involves more tissue, produces greater toxemia which in turn serves as additional cause of ileus. If one could know exactly when the infection is controlled or cannot be caused to spread by intestinal movements, at that time these drugs might be useful. If they are given before such time they must increase the infection that causes the stasis. They produce less violent peristalsis than active purgatives, but definitely produce it if they are to benefit. They are at cross-purposes with rest which still stands first as a therapeutic measure.

Enterostomy has been tried in ileus without arousing much enthusiasm. The objection to it is that, while it allows escape of gas from a small segment of gut, it fails to allow escape from the whole intestine on account of numerous bucklings of the loops due to pressure of the gas distended coils against adjacent coils in a closed cavity. If angulation could be avoided enterostomy should be an ideal treatment. If enterostomy is done as a prophylactic measure in cases in which ileus is beginning or is very likely to begin, I am sure it is a worthwhile measure. If it is to be useful it must be done before the distention is too great and before the capacity for peristalsis is entirely lost.

In desperate cases in which, in spite of



all measures employed, flatus cannot be passed and distention progresses rapidly toward a fatality, Kirschner recommends multiple punctures in the following words: "If in desperate cases of ileus the peristaltic power of the overdistended intestine can no longer evacuate its contents over long stretches of gut through the natural or an artificial or through an intestinal fistula, multiple punctures of the gut with a fine needle may bring about a resumption of activity of the gut. This measure is theoretically fraught with danger of an infection of the peritoneal cavity by the seepage of intestinal contents into it through the opening in the intestine made by the needle and the procedure would, therefore, seem questionable at first glance. Experience has shown, however, that this danger is very slight since the puncture wound in the gut, if made with a sufficiently fine needle, closes at once, so that no further contents escape from the emptied and collapsed gut. Nevertheless, in view of the danger of the procedure, it should be used only in desperate cases. That it may be lifesaving in such cases is beyond doubt, in my opinion, which is based on numerous experiences.

"It is usually possible by inspection and palpation to determine the position of a few especially distended loops in the swollen abdomen of the patient. These points are marked with a colored solution. As a rule five or six such points are selected. The region is painted with a tannin-alcohol solution and the point of puncture is anesthetized by skin infiltration with novocaine. A hollow needle, five centimeters long and six-tenths millimeters in diameter, of the type used for the injection of local anesthetics, is thrust perpendicularly through the abdominal wall into the gut. One can feel clearly when the needle point has overcome the resistance of the abdominal wall and lies within the gas-filled intestinal loop. The needle is left in place and the same procedure is undertaken with another needle at the second of the indicated puncture points. This is continued until all the points have been punctured.

"The needles are left in place for some time, sometimes as long as half an hour,

while the intestinal gases in favorable cases escape through the needles and the abdomen slowly collapses with an attendant improvement in the general condition of the patient. It is possible to hear and see the escape of the gas by applying a drop of fluid to the free end of the needle. Or it may be recognized by the movement of a bit of cotton or the flame of a burning match held in front of the needle opening. Occasionally the needles show a pendulum motion as a sign of the resumption of peristalsis. A needle from which no further gas has escaped for some time is withdrawn."

Kirschner adds that this treatment may be repeated several times if distention recurs.

Robineau and Levy discuss a most important phase of the prevention and cure of adynamic ileus in *Presse Medicale*, October 11, 1933, under the subject, "Postoperative Accidents May Be Avoided." Throughout their discussion ileus stands as the central feature. The cause of death in cases dying of ileus is not discoverable at autopsy, for the simple reason that the cause is due to chemical changes in the blood. Increase in the intragenous content of the blood and reduction in its salt content have been equally proven in the course of postoperative accidents in which there is no syndrome of occlusion, no vomiting, no diarrhea. In these cases the injection of salt corrects both deviations, raising the salt and reducing the nitrogen in the blood and relieving the clinical symptoms.

Their study convinced them of the following details:

1. Every surgical intervention of whatever importance, whatever the anesthetic, is followed by variable increase in the blood urea. This increase begins on the day of operation and sometimes progresses very rapidly, without the appearance of any clinical symptom to arouse suspicion.

2. After surgical intervention more or less early the salt in the blood diminishes, sometimes not synchronously with the rise in blood nitrogen. This loss of salt is a displacement in the cases studied and not an elimination, for in the cases on which these determinations were made there was

neither vomiting nor diarrhea. The loss was not through the urine, for its saline content was below normal.

3. There is no direct relation between the loss of salt and the increase of nitrogen. In the cases studied the nitrogen increase reached a maximum before any evidence of hypochlorization. As in mercurial nephritis there is increased nitrogen with loss of salt, not because of the loss. Nevertheless the loss of salt may accelerate the increase of nitrogen. The proof of this is found in the effect the injection of salt produces in reducing the nitrogen in cases of uremia.

4. Surgical intervention produces profound modifications in acid-base equilibrium—disturbance of the ratio of globular salt and plasma salt; reduction of the alkaline reserve; Ph normal or deviated toward alkalinity.

Whether the minor disturbances arising on the day of operation, postanesthetic vomiting, malaise, dry mouth, increased pulse rate, oliguria are due to these chemical changes in the blood or not, Robineau and Levy are certain that later serious accidents are directly attributable to them, and mention first among them paralytic ileus, which is the one pertinent to this discussion.

"The curative treatment of postoperative clinical disorders by the intravenous injection of concentrated solutions of salt is

very often efficacious; a similar treatment given preventively when the operation is finished seems to combat advantageously the disturbances in the organism out of which the disorders arise, and the nitrogen and salt remain at their normal levels in the blood.

"The happy action of the preventive use of hypertonic salt solution has a clinical significance: the disappearance of discomforts on recovery from the anesthetic, the rapid appearance of a state of well-being, the regularity of the pulse which requires no stimulating injection, the moistness of the mouth and the absence of thirst, the insignificant amount of vomiting (if any), the early and easy passage of gas following abdominal operations; finally (and this fact has been observed by the relatives of the patients) at no time was there a change of the features, nor evidence of fatigue in the face, nor of any discoloration whatsoever. It seems to us that emaciation and loss of strength are very much less in cases which have been treated in this way.

"These are the undeniable advantages to the operated patients; but the essential point is that every serious alarm, every grave accident not attributable directly to the operative act was avoided. The preventive effect resulting from the use of salt gives the surgeon a security which is not negligible."



## INTESTINAL OBSTRUCTION WITH UNUSUAL COMPLICATION\*

J. H. FRANCIS, M.D., F.A.C.S., Memphis

MARCH 27, 1934, 8:00 P.M., J. R. M., age 58, was admitted to the Baptist Hospital. His history was briefly as follows: He was taken sick rather suddenly Friday, March 23, with pain and swelling in his left inguinal region. He consulted his family physician, who put him to bed with an ice cap over the swollen area. The pain and swelling seemed to subside, but on Sunday, two days after the onset, the patient began to vomit. The vomiting increased in frequency until time of admission to the hospital. The pain in his groin had subsided and the swelling had practically disappeared. Various remedies were tried at home but the vomiting persisted. Several enemas were given with poor results. The patient was admitted to the hospital five days after onset of sickness.

Examination showed a well-developed, rather poorly nourished man, with an anxious expression on his face, lying quietly in bed with his knees flexed. Examination, except for a marked degree of dehydration, was essentially negative for a man of his age except the abdomen. The abdomen was rather markedly distended with gas, and there was generalized tenderness. Loud intestinal rumblings were heard with a stethoscope. There was no visible peristalsis. In the left inguinal region, a small tender mass about the size of the tip of your index finger could be palpated. After several enemas, with no return except the water given, a tentative diagnosis of intestinal obstruction from a Richter's hernia was made. Blood examination showed the following: R. B. C., 4,300,000; W. B. C., 13,300; polynuclear neutrophils, 90 per cent; hemoglobin, 76 per cent; 370 mgs. chloride per 100 cc.; 48 mgs. N. P. N. and 58 per cent carbon dioxide combining power. Urine showed a trace of albumen and many

granular casts. A flat X-ray plate at this time showed the following: Marked gaseous distention of small intestines in the left abdomen about opposite the fifth lumbar vertebra, suggesting a partial obstruction in the intestinal tract. Due to this man's general condition and the blood findings, it was thought best to decompress the small intestine with a Wangensteen suction apparatus and to replace the blood chlorides before operative intervention was tried. We tried for an hour to introduce a tube into the patient's stomach and finally, after getting it down, the patient very promptly removed it and would not let us introduce it again. So he was given intravenous saline and nothing by mouth, and he vomited only once during the night.

On March 28, under ethylene and novocaine anaesthesia, the abdomen was opened and a Richter's hernia of the ileum was found in the left internal ring. After releasing the intestine, it was found that the protruding portion of the gut was necrotic and had recently ulcerated through. A tube was introduced into the intestine through this necrotic area, the intestine brought up to the skin and the incision closed. He was given 5 per cent glucose in saline, intravenous, and sodium amytal as a sedative. On the third day the temperature and pulse had reached normal. The enterostomy tube was functioning well and the patient appeared greatly improved. His condition continued to improve, and on April 5 he was taken to the operating room for closure of the enterostomy. After the intestine had been delivered, it was found that the gut was necrotic for two or three inches in both directions from the tube, so that a resection was necessary. An end to end anastomosis was done and the abdomen closed. A very stormy period was encountered the first ninety-six hours after the operation, and during this time two transfusions, intravenous glucose in saline, stimulants and sedatives were given. On the fourth day

\*Read before Memphis and Shelby County Medical Society, June 5, 1934.

the patient seemed better and during the day his bowels acted. The patient improved and seemed better each day, but on April 10 he complained of pain in his right foot. There was no swelling but a slight discoloration developed near his big toe. The foot and leg were bandaged, elevated and heat applied continuously. For several days the pain in his leg and foot was rather severe, but gradually subsided. Discoloration of his foot and ankle gradually developed and no pulse could be felt in the tibial arteries. After ten days a line of demarcation had formed diagonally across the leg from a point about two inches below the patella in front to about six or seven inches above the ankle behind. The patient's general condition was good. His pulse and temperature normal, bowels acting several times a day, and the abdominal wound practically healed. The foot and ankle by this time were black and shrunken, but the calf muscles and around the knee were swollen and tender. It was then decided that there was no alternative but to amputate the leg. On April 23, under a low spinal anaesthetic of neocaine, a chop amputation was done through the middle third of the thigh. No tourniquet was used and the big femoral vessel did not bleed when cut, although the muscles were of good color and bled rather freely. The patient was given 500 cc. of blood immediately following the amputation and had very little, if any, shock. His condition improved rapidly, and on April 30, one week after the amputation, he was moved to his home. After some infection of the stump, it healed by granulation and the patient apparently recovered.

Pathological report by Doctor Leake was as follows: The right leg was amputated in the middle third of the thigh. The entire foot was black, dry, and shrunken. The toes were mummified in appearance. Above the ankle the leg was swollen, quite soft, moist and dark green. There was an irregular line of demarcation in the upper third of the leg. Several dark yellowish areas of excoriation were noted about the knee. On section, large abscess cavities filled with thick, yellow pus were found in the lower part of the thigh, popliteal space and poste-

rior part of the leg. The muscles were quite soft, dark, and moist. The abscess cavities were situated along the course of the great vessels. Diagnosis: Gangrene in the leg, apparently result of thrombophlebitis.

Comment: This case has been presented for your consideration because of one or two points that I would like to emphasize. First, complete obstruction and gangrene of the intestine by a Richter's hernia is comparatively infrequent. This hernia had evidently been strangulated for five days and the large area of necrosis had been produced by stasis of the mesenteric blood supply. In obstruction from any cause, where there has been continuous vomiting and has resulted in marked dehydration and lowered blood chlorides, the patient seems to respond better to operative procedures if replacement therapy is employed before operation.

The development of the condition of the leg is rather difficult to explain. Dr. Leake said that the condition of the specimen was so bad that he did not attempt to dissect it or examine the vessels. There was evidently a thrombus high in the femoral artery as shown by the mummified foot and leg and by the fact that the vessel did not bleed when cut. According to Welsh, the majority of arterial thromboses are caused by some local injury or disease of the arterial wall or by the lodgment of an embolus and that the most frequent site of arterial thromboses is in the lower extremities.

The formation of pus in the leg must have followed a suppurative phlebitis with thrombosis but other than pain in the leg there were no symptoms of beginning phlebitis.

It is the opinion of Clutter that phlebitis, either simple or infective, may arise in any wound or after any operation in which a vein has been exposed and if the larger veins be the seat of the trouble the auto-infection goes on till the whole length of a large vein or series of veins are involved. With this in mind we could assume that the phlebitis was an extension down the iliac and femoral veins into the leg with the resultant pus formation.



## SOME DISEASES RESULTING FROM OBSCURE SINUSITIS AND MASTOIDITIS WHICH ARE USUALLY TREATED BY THE FAMILY PHYSICIAN OR PEDIATRICIAN\*

N. E. HARTSOOK, M.D., Johnson City

FROM EARLIEST infancy there is sufficient development of the paranasal pneumatic system to make sinusitis in infants and young children a condition that demands the most careful clinical consideration, not only with cases in which the sinuses are known to be infected and which can be demonstrated, but it especially demands investigation in some systemic conditions resulting from obscure etiology. The same statement may be made with reference to the infantile mastoid process which is but slightly developed, although the bony tympanic and mastoid antral spaces are well developed in earlier infancy. Also, although there is but little development of the cellular structure of the infantile mastoid, the osseous tissue adjacent to the antrum is cancellous and soft and is, therefore, very susceptible to infection and necrosis.

Both the paranasal sinuses and the mastoid antrum may become more or less closed empyemas from which toxins may be disseminated throughout the body by lymphohematogenous absorption and transmission. This was demonstrated conclusively by a long series of experiments conducted by Mullin in which he injected India ink into these localities in animals. At necropsy he found carbon deposits in the submaxillary and jugular nodes, the thoracic duct, the large veins, and other body structures. Also, Looney, in a recent monograph, clearly discloses the *modus operandi* of the free dissemination of toxins from focal infections of the head by way of lymphatic drainage into the blood stream.

In a study of the systemic diseases resulting from these sources of infection Dean summarizes as follows: "Cardiac lesions, rheumatic fever, chorea, nephritis, pyelitis, certain types of cyclic vomiting, deforming peri-arthritis, anemia, anorexia, malnutrition, chronic digestive disturbances and

acute toxemia." He calls attention to asthma and bronchiectasis as remote effects more or less peculiar to chronic paranasal sinusitis.

During the last two decades, and especially during the last decade, there has been an increasing interest manifested by many of the leading investigators in an effort to determine the cause of so many babies and very young children suddenly developing a fulminating form of gastrointestinal intoxication that resists all treatment, dietary and medicinal, and which may speedily terminate in death. The relative frequency of these cases with the extremely grave prognosis that attends them inspired Floyd, Kerrison, Dean, Mulligan, and many others in a number of clinical centers in the United States, and still others to some extent in Europe, to conduct an intensive search for foci of infection that could be removed, and the lives of many babies and young children saved. The evidence gained by the investigations demonstrated the association of infection of the paranasal sinuses, especially the maxillary antrum, and the mastoid region with the extremely severe gastrointestinal disturbances.

I do not hold as tenable the theory that a virulent toxin is elaborated in any nasal sinus or the mastoid antrum that has a particular predilection for the gastrointestinal tract. The same gastrointestinal phenomena might occur if the focalized infection were located anywhere else in the body with equal facilities for lymphohematogenous dissemination. The gastrointestinal syndrome is the local manifestation of a generalized systemic toxemia. Neither do I believe any conclusion tenable which ignores a pathologic consideration of the etiologic relationship of sinus or mastoid infection to the gastrointestinal manifestations. The true nature of the relationship between cause and effect in these cases is more or less problematical, and will remain so until our knowledge is broadened by further investigation.

\*Read before the Tennessee State Medical Association, Nashville, April 9, 10, 11, 1935.

Almost every general practitioner and pediatrician has had the care of cases of this type involving extreme prostration brought on by acute nutritional disturbances manifested by diarrhea, vomiting, dehydration, progressive and rapid loss of weight, and lethargy, which have gone to a fatal termination in a short time, regardless of all efforts at treatment. In these cases with obscure etiology there are no symptoms indicative of pain, and no symptoms whatever that direct attention to the paranasal sinuses or the mastoid region. Lethargy, dehydration, and fever mark the sudden onset. These patients rarely or never cry, and quickly lose all interest in their surroundings, and it is difficult to attract their attention. The leucocyte count varies from 15,000 to 40,000. In the extreme cases death may occur in a few hours.

The mortuary reports giving cholera infantum, infectious enterocolitis, etc., as the cause of death were vague and unsatisfactory. Therefore, prominent investigators were impelled to start an exhaustive search for the cause. Physical and laboratory methods were employed extensively in an effort to determine the cause and locate an infection, but without success. The ears were examined as a routine measure for otitis, but these examinations disclosed no positive tympanic findings in a majority of the cases. Only in a comparatively small number did the ear examination disclose any condition of a suspicious nature, and more rarely of a positive nature. This might be explained by recalling that in infancy the ear drums, frequently, are somewhat flushed in color in the presence of a febrile reaction from any cause. Therefore, in the absence of a bulging drum, or rather a bulging of the postero-superior wall at the inner end of the auditory canal, it is often difficult to determine definitely from otoscopic inspection whether or not there is involvement of the tympanic cavity. Usually there was little or nothing to attract attention to the accessory nasal chambers. Physical examination failed to disclose the cause of the profound nutritional disturbances. Therefore, a comprehensive routine of mortuary examinations was instituted. At autopsy nothing was found in any of the visceral organs that disclosed the cause

of the illness. There was usually no abnormality in the brain at or near the internal ear. But when the maxillary sinuses and the mastoids were opened sinusitis or mastoiditis or both was marked and frequently bilateral. Thick pus, usually under pressure, was disclosed. The cause of the grave toxemia and attendant gastrointestinal disturbances was discovered to be a focal infection in the nasal sinuses, especially the maxillary sinus, or the mastoid antrum.

During infancy maxillary antrum infection, owing to the histologic and anatomic conformation of the maxillary sinus, can become a walled-off empyema and give rise to systemic manifestations. In discussing these conditions Marriott states: "Infections of the nasal accessory sinuses can occur, even in young infants, as certain of these sinuses are developed at birth. Infection of the maxillary antra can bring about the same symptoms in infancy as infections of the mastoid, and this fact should not be overlooked in searching for the causes of nutritional disturbances."

Let us consider the anatomy of the infantile middle ear and mastoid in order to better understand why infection in this region may be associated with complications that are so grave. The eustachian tube is more horizontal than in the adult and is more patulous. It is short and broad. Therefore, it offers an easy entrance to upper respiratory infection and, also, for the same reason supplies a channel of restricted drainage from the middle ear. In some instances drainage of pus from the mastoid antrum into the middle-ear cavity occurs, although much impeded in its passage through the aditus, and the pus flows freely through the wide eustachian tube into the nasopharynx. In such cases bulging into the external auditory canal may not occur. This, in part, accounts for the fact that otoscopic inspection in some instances fails to reveal pathology in the tympanic cavity. Also, this condition may account for some instances of the concomitant nasal sinusitis that is occasionally present. But drainage of pus through the tympanic cavity and eustachian tube usually does not occur in this manner. Pus, in some instances, is forced through the aditus into the middle ear, but does not have adequate



drainage into the nasopharynx. In such instances, otoscopic inspection will reveal pathology in the tympanic cavity. The middle-ear cavity, aditus, and mastoid antrum are lined with a thick embryonic membrane, which normally is thinned out as the baby grows into childhood. The presence of this embryonic membrane in the aditus, when further thickened by inflammatory swelling, more or less completely blocks drainage from the antrum into the tympanum and converts the mastoid antrum into a closed empyema. This further explains why we do not more often see bulging drums in the ears of babies who have mastoiditis. Also, it explains why an incision of the drum frequently fails to give relief. Owing to the high position of the mastoid antrum and the horizontal position of the drum membrane as compared with the adult, bulging of the drum, when it does occur, is not in an outward direction, but is always directed more or less downward. This and the small drum area make a classical incision of the drum more difficult to perform and, therefore, it cannot be so perfectly accomplished as it may be in the adult. This fact further accounts for the inadequate drainage following a paracentesis of the drum membrane in infants in many instances.

Some observers contend that all cases of otitic or mastoid infection will be reflected in the appearance of the infantile membrana tympani and can be observed by close inspection. I cannot agree with this contention. Basing my view of the matter on a limited observation, I am convinced that there are instances of otitic and mastoid infection, the latter in particular, in which the appearances of the infantile drum membrane are either nil or deceptive. External swelling over the mastoid process and obliteration of the postauricular crease are very rarely present. Therefore, a definite, workable diagnosis upon which treatment can be based is not always an easy matter.

From the foregoing brief review of the histology and gross anatomy of the middle ear and mastoid antrum in infants, the reason why the antrum frequently may become a closed empyema with pus held under pressure is apparent. If these patients can survive the gastrointestinal disturbances

long enough, infection may be transmitted to other localities, and form a subperiosteal or an intracranial abscess or meningitis. This frequently occurs in unrelieved or prolonged cases in the absence of rapidly fatal complications, unless the patient, perchance, survives the onslaught of the acute gastrointestinal intoxication, and partial or complete resolution of the causative focus of infection, finally, ensues.

A small proportion of these profoundly ill patients with unquestioned involvement of the paranasal sinuses or mastoid region may recover under hygienic and medicinal treatment alone. The foci of infection may undergo complete resolution, but usually only partial resolution, and become latent and a potential source of future disturbances, not only of the alimentary tract, but also disturbances of various other structures of the body. This is more particularly true if the causative infection is focalized in the paranasal sinuses. If the foci of infection have not been treated, and the infection has not been thoroughly eradicated, many, if indeed not a considerable majority, of the so-called recovered cases become merged into a rather large group that remain in a state of semi-invalidism indefinitely, and through retarded growth develop into children of varying ages in a precarious state of physical resistance. Children in this group are usually undernourished, anemic, and wan. They are susceptible to nutritional disturbances of varying degrees of severity. A trivial exciting cause may bring them down with acute affections of the alimentary tract, the bronchi, the lungs, the kidneys, or other organs. Marvin F. Jones, of New York City, points out that frequently, after the causative infectious foci, to all appearances, have undergone resolution, various disturbances may appear. Referring to alimentary disturbances in this type of young patients he states: "Food refusal is manifested early; pallor is marked; the bowel movements become irregular, and a failure to gain in weight is the result. As the disturbance progresses, nausea and vomiting occur, and a diarrhea with dehydration ensues. Acidosis accompanies these symptoms. Physical examination and laboratory data indicate

no other organic changes. Changes in feeding formulae offer no permanent relief."

But, so far as I am aware, authorities are in agreement that alimentary intoxication is neither the most serious nor the most frequent disease complicating sinus and otitic infections in children. Jones remarks: "Among the concurrent diseases the most outstanding are the pneumonias, with bronchopneumonia predominating." He divides the pneumonias into two groups: those occurring just before or following soon after the active stage of the causative infection, "and those classed as terminal pneumonias occurring shortly before death." These children usually have a purulent postnasal drainage, particularly if sinusitis is the cause, and most of them are mouth breathers. The infected matter is drawn by aspiration directly into the bronchi, and in this way many of the pneumonias, especially bronchopneumonia, are brought about. *Much, if indeed not a majority, of the pneumonia incident to children properly may be attributed to sinus infection.*

There is another group of young patients, including those from infancy to preadult age, in which the occurrence of the chronic, masked, obscure type of sinusitis, characterized by mild recurrences and attendant head colds, is rather frequent. This type of sinusitis gives rise to a great variety of pathologic conditions. A frequent pathologic manifestation is a condition simulating tuberculosis. Children of this type are usually more or less anemic, they have a capricious appetite and digestion, and most of them are languid and prone to be inactive. Underweight is frequently marked. A moderate elevation of the evening temperature is not uncommon. Cough, rales, and expectoration may be quite annoying at times, and frequent colds, especially during the fall, winter, and spring months, are usual. X-ray films frequently disclose the presence of hilus shadows, which in some instances may be quite large and involve more or less of the lung substance on both sides with dense areas that appear to be calcified. Peribronchial thickening is frequently extensive and dense. The clinical picture, together with the X-ray findings, alone would appear to justify a diagnosis of tuberculosis, which is the most frequent

error in diagnosis. In these cases, tuberculosis can be eliminated and a correct diagnosis established only after a thorough examination of the nasal sinuses by inspection, transillumination and X-ray with the use of a radiopaque and with the patient's head placed in varying positions, and, finally, by the use of properly conducted intradermal tuberculin tests. The correct diagnosis, usually, will be found to be chronic bronchitis involving the bronchial and peribronchial glands.

It would be very interesting to discuss other grave diseases belonging to this group, but it is not possible to discuss in detail many of the complications resulting from head infections in the time allotted to this essay. Therefore, I will only mention that it is now generally conceded by competent observers that obscure, latent, or masked focal infections in the head give rise to many other pathologic conditions which are attended by very distressing symptoms. Among these may be mentioned asthma, emphysema, bronchiectasis, the different types of acute and chronic nephritis, and pyelitis.

There is no field in the whole domain of medicine that demands a closer cooperation between the pediatrician or family physician and the otolaryngologist than the definite etiologic diagnosis and skillful management of diseases resulting from focal infections in the head. In many instances it is difficult to formulate a positive etiologic diagnosis, but upon the accuracy of the diagnosis and skillful operative and medicinal treatment the destiny of human existence, frequently, must depend.

#### BIBLIOGRAPHY

1. Mulligan, H. R.: "Mastoiditis in Infants Associated with Gastrointestinal Symptoms." *Ann. Otol., Rhin., and Laryn.*, June, 1932.
2. Burgess, T. S.: "Mastoid Infection and Nutritional Disturbances in Infants: Report of Three Cases." *Ann. Otol., Rhin., and Laryn.*, June, 1934.
3. Floyd, M. L.: "Masked Mastoiditis Simulating Alimentary Intoxication." *Arch. Otol.*, April, 1925.
4. Marriott, McK.: "Pediatric Aspects of Otolaryngology." *Ann. Otol., Rhin., and Laryn.*, September, 1927.
5. Marriott, McK.: "Pediatric Aspects of Otolaryngology." *Ann. Otol., Rhin., Laryn.*, March, 1928.
6. Jeans, P. C., and Floyd, M. L.: "Upper Re-



spiratory Infection as a Cause of Cholera Infantum." J. A. M. A., July 24, 1928.

7. Mullin, W. V.: "The Relation of Paranasal Sinus Infection to Disease of the Lower Respiratory Tract." J. A. M. A., September 4, 1926.

8. Mullin, W. V.: "A Review of Sinus-Chest Infection." Ann. Otol., Rhin., and Laryn., September, 1932.

9. Steinsleger, M.: "Mastoiditis in Infants (abstract)." J. A. M. A., May 17, 1919.

10. Jones, Marvin F.: "Infection of the Temporal Bone with Secondary Manifestations." Ann. Otol., Rhin., and Laryn., September, 1934.

11. Jeans, P. C.: "The Diagnosis and Importance of Mastoiditis and Sinusitis." Am. Dis. Ch., February, 1927.

12. Spielberg, William: "Pathology of Chronic Sinusitis in Children." Ann. Otol., Rhin., and Laryn., September, 1934.

13. Kerrison: "Mastoid Abscess without Aural Discharge." Ann. Otol., Rhin., and Laryn., September, 1919.

14. Dean, L. W.: "Influence of Paranasal Sinus Infection in Infants and Young Children." Ann. Otol., Rhin., and Laryn., December, 1927.

15. Hurd, L. M.: "Chronic Infection of the Nasal Accessory Sinuses." Ann. Otol., Rhin., and Laryn., December, 1930.

16. Davis, W. B.: "Sinusitis in Children." Ann. Otol., Rhin., and Laryn., June, 1932.

17. Johnston, W. H.: "Mastoiditis in Infants: A Review of the Literature with Summary of Cases Studied." Ann. Otol., Rhin., and Laryn., December, 1931.

18. Clausen, S. W.: "The Effect of Obscure Mastoiditis upon Nutrition in Infancy." N. Y. State J. Med., 28: 31, 1928.

19. Looney, W. W.: "Lymphatic Drainage of Head and Neck." Ann. Otol., Rhin., and Laryn., March, 1935.

## DISCUSSION

DR. ROBERT SULLIVAN (Nashville): Mr. President and Gentlemen: This is a most important paper that Dr. Hartsook has brought before this society. I won't enter into the discussion that the ear doctors and the baby doctors had a few years ago as to the cause of gastroenteritis and gastric disturbances, a particular school at one time claiming that most of the diarrheas and whatnot were due to some infection around the mastoid. Of course, that was just a little too radical, and on the other side some of them believed that anything like that could never happen, but somewhere along the line there is a ground that is, I think, more or less conservative and correct.

To define mastoid infection in infants, I think Coates' description is the most helpful in that he explains what we mean by mastoid infection in adult life where sufficient infection of the mucosa of some or all of the mastoid cells exists, with or without bone destruction and thrombophlebitis of the blood vessels, to give rise to local manifestations of inflammation over the mastoid area, sys-

temic signs that can be attributed to such an infection, or infection and destruction of mucosa and bone without recognizable signs or symptoms, until a long interval of time has passed, or the autopsy has revealed the seat of disease.

In the infant, where the mastoid has not developed, we experience greater difficulty in defining this condition, since we have by the terms of our previous definition no mastoid to deal with except a large antrum, or, at the most, a few surrounding pneumatized spaces. The mastoid is still diploic in type. Mastoiditis, therefore, to be distinguished as a separate entity from otitis media, must mean infection of the antral mucosa, of the bony walls of the antrum, and of such surrounding cells as may be present, sufficient to cause local symptoms calling attention to the localized infection or general symptoms which may or may not be linked up in diagnosis with the local infection.

Dr. Hartsook mentions the anatomy of the infant's middle ear and mastoid, so I need not discuss this further than to add that, according to Alexander, the infantile tympanic membrane is more resistant than the adult and as the folds of mucous membrane in the middle ear and attic present early accumulation of a large mass of infected secretion, pressure upon the drum, with resultant necrosis and perforation, is often much delayed. This delay may be prolonged by drainage of infected material through a wide, patulous eustachian tube, so that, while general symptoms of infection may be apparent, there is little to direct attention to the ear and little to be seen from examination.

There is no doubt in my mind that, even with the closest examination of the tympanic membrane in infants, we are frequently wrong by giving our report that there is no pathology or no signs of inflammation to be seen whatsoever in the tympanic membrane. If there is some doubt, I think frequent examinations should be made. I am talking now not about the child who just has a little earache, but I am talking more about the gastroenteritis cases, and things like that, where you try to find some infection, and there I think repeated examinations of the tympanic membrane should be made.

The general consensus of opinion seems to be that middle ear and mastoid infection, from whatever cause, whether latent, marked or manifest, is of very frequent occurrence in infants, particularly in those of lowered resistance from acute or chronic diseases, general malnutrition and unhealthy surroundings.

Gompuz attributes this to:

(1) Short, wide eustachian tube and the position of the nasopharyngeal opening.

(2) Changes in circulation following birth, together with hyperemia and loosening tympanic membrane.

(3) Persistence of the embryonal tissue of the middle-ear mucosa beyond the fetal period.

(4) Immaturity and undeveloped resistance.

(5) Hereditary and constitutional taints, such as tuberculosis, syphilis, and rickets.

(6) Infectious diseases, sneezing, crying, coughing, and vomiting, forcing infection to the ear through a wide, short tube.

(7) Hematogenous infection.

(8) Gastrointestinal and cerebral affection in which vomiting persists.

So much for the mastoid infection in infants. Now as to the sinus infection. We are all prone to overlook the fact that, regardless of the child's age, it may have a sinus infection. A good many years ago we felt that sinuses were not developing until the children were ten or twelve years of age. Now we know they are born with all the sinuses except the frontal, and that frequently develops in early infancy; the other sinuses, as a rule, are present at birth, and they can become infected, of course, just as much as adult sinuses can become infected.

I think that a child or an infant that has certain symptoms such as these should be suspected of some sinus involvement: mouth breathing; nasal discharge, either unilateral or bilateral; irritation around the nares from the discharge; cough. A cough is hard for me to describe, but all of us are familiar with the typical cough of a patient with an acute chronic sinusitis—just one little cough and one can almost tell there is some sinus infection; it is almost like the cough of bronchitis. Some of them have asthma. Then there are the eye signs, repeated conjunctiva irritations; gastrointestinal disturbances; pharyngitis, and, in that connection, if you look at the child's throat, you will see frequently the purulent material draining down the pharyngeal wall. Another thing that will help in making the diagnosis is recurrent fever. Transillumination is of very little aid, I think. X-rays are most helpful. Some other symptoms are repeated colds, headaches, and cervical adenitis.

I think this paper of Dr. Hartsook's is a most timely and delightful paper, and I think we are indebted to him for bringing this before the general session.

DR. R. H. NEWMAN (Knoxville): Very little remains for me to say on this paper because the subject has been covered by Dr. Hartsook and Dr. Sullivan. I think Dr. Hartsook deserves a great deal of credit for his arrangement and presentation of his review of the anatomy and physiology of the mastoid and the paranasal sinuses.

Even at that, though, this paper is just another paper on focal infections, and just takes up one phase of the focal infections to which the human body is heir.

A few years ago Dr. Marriott and his followers evolved a system that almost called for the operating of every child who came in with a diarrhea; in fact, the otologist at that time was operating on all these mastoids with the same impunity that a few years ago the general surgeon did oophorectomies and other like operations. That, I think, was a swing of the pendulum entirely too far to the

left or the right, whichever you might call it. The fact remains that a certain number of these cases do have infections in the antra and the mastoids, which are responsible not only for their gastrointestinal disturbance, but for various other conditions which we all recognize as coming from focal infections.

The diagnosis of a mastoid infection in children, as has been stated by the essayist and the discussant, is not a very simple sort of affair. There is no way to tell one how he can diagnose this from infection of the drum, but there are certain parchment-like appearances of the drum which sometimes will give one some information upon the condition existing within the mastoid antrum.

The X-ray has been mentioned as an aid to diagnosis in this condition, but with just the antrum and probably a few cells, a very few cells, which will show any disturbance whatsoever, the X-ray is not of a great deal of value in determining this condition.

The diagnosis of involvement of the antra in children is much more difficult than it is in adults. In adults under local anesthesia, we can puncture an antrum and wash it out and determine whether or not it has pus or an empyema. In the child, a procedure of that kind cannot be made unless the child is under a general anesthetic, so our diagnosis must be made chiefly by clinical signs, other than which I think there is none better, and the physical signs on inspection of the nose. A continual postnasal dropping is of a great deal of significance in these cases. I think that many cases, as the doctor has mentioned, that have a persistent cough can be traced back to infection in the antrum.

Only yesterday I was talking to Dr. Barber, who was the guest speaker here at the Pediatric Section, and he said that many times these persistent coughs in children which absolutely showed no pathology in the lungs, and were very indefinite as to origin, came from infection of the antra or some other infection about the head, as tonsils and adenoids, and that this was of hematogenous or lymphatic transmission, that the peribronchial glands were enlarged, and irritation of the recurrent laryngeal nerve set up a reflex which caused this persistent cough, and that to cure this it was necessary to remove the source of the infection.

The rhinologists and otologists in past years have taken a step to the right, I think, in eliminating and getting more conservative in their treatment of the various infections of the head. In the main (and this applies to infections of the mastoid, infections in the antra, and all infections about the nose and head), he who drains well cures well. If you procure drainage, aeration, ventilation of the nose, if there is no obstruction in the nasopharynx, you will find that many of these cases will clear up.

DR. M. M. CULLOM (Nashville): Mr. President and Gentlemen: I don't want to take your time in discussion at length, but I would like to say that this is one of the most important papers



brought before a general session, because I think it will open up to the general practitioner many cases that have been obscure, and will enable him to find the cause of his patients' trouble.

When we had that terrific epidemic of influenza in 1918, we had a great many mastoids and a great many sinus infections. After I had operated on a number of mastoids and also drained infected sinuses in the same patient, I commenced to notice the connection, and for fourteen years I have followed that up carefully and have found that eighty-five per cent of the mastoids that I operated on had an infected sinus on the same side. I made the point in the first paper that I read in 1929 that infected sinuses were the great cause of middle-ear infection.

We have always considered that the infectious diseases, such as measles, influenza, and diseases of that type, were associated with middle-ear infection. I made the statement that if all these patients with middle-ear infection were X-rayed it would be found that a very large per cent would have infection in the sinus on the same side as the infection in the ear. This was taken up by a group of physicians in Syracuse, New York. They X-rayed every child who was brought in with scarlet fever. There were nearly 400 cases of scarlet fever that were carefully examined in this way. They found that ninety per cent of these children had infection in the sinuses. They found that of the mastoids (quite a large number had mastoids) there was not a single one that did not have an infection in the sinus on the same side.

Other men have investigated this from the standpoint of deafness. Dr. Fowler in New York examined 200 ears of children who were deaf or had impairment of hearing. He found ninety per cent of them had sinus infection or evidences of it. Dr. Campbell in Philadelphia examined the sinuses of 150 infants who had middle-ear abscesses. He found that ninety per cent of them had pus in their sinuses on the same side.

There is a great field for cooperation between the ear, nose, and throat men and the general men, and I think it will be found that this is the cause of many diseases that we do not now attribute to this infection.

I have a paper that I read before the American Medical Association last June in Cleveland that I would like to send to each one of you in reprint, and I would like to make the request that you read it carefully and thoughtfully, and I believe it will be helpful to you in the practice of your profession in a general way.

I ask your cooperation in these cases. If I have a moment left I should like to report a most interesting case. This patient came to me the other day, a woman aged fifty-five. The interesting point was that she was Dr. Hale's patient when she was nine years old, Dr. Hale being my partner. She gave a history of having an abscess in her right ear when she was two years old. That discharge

kept up. Dr. Hale did a mastoid on her right ear when she was nine. She has been treated for her sinuses ever since. She was the sister-in-law of a specialist. I examined her and on her right side every sinus was involved. It was the right mastoid that was affected. It made a very, very interesting case, because no doubt the sinuses were the cause of her middle-ear infection, her mastoid, and have stayed with her ever since.

DR. N. E. HARTSOOK (closing): I am very grateful for the interesting discussions. However, it is no more than I expected, as it is an extremely important subject.

I wish I had time to elaborate a little more on some of the diseases mentioned, namely: emphysema, bronchiectasis, acute nephritis, nephrosis, and pyelitis, all of which come along in the trail of these infections.

I believe it was Ferris Smith who reported that, of the cases of asthma that came under his observation, the X-ray with the use of a radiopaque showed eighty-two per cent had infected sinuses, and sixty per cent of all asthmas begin in children and extend to varying periods of adult age. McLaurin of Dallas makes the statement that, with the exception of the specific infections of syphilis and tuberculosis and infections due to foreign bodies retained in the bronchi, 100 per cent of all cases of chronic tracheobronchitis, bronchitis, peribronchitis, and asthma are due to infection of one or more of the paranasal sinuses. That is a rather strong statement, but he may be right. He calls attention to such outstanding otolaryngologists as Tobey, Carmody, Greene, and Rachemann who hold the same view of the matter.

Longcope reports that he found streptococci in the nose and throat in eighty-three per cent of the patients under his observation who had recurrent nephritic hematuria, whereas ninety per cent of the patients who showed complete recovery from the hematuria were free from streptococci in the nasopharynx.

So it appears that the most outstanding men we have in the field of otolaryngology are giving this matter the very greatest attention.

The reason I selected this subject for this occasion is the fact that I want to do what I can to promote the very closest cooperation between the man in general practice and the pediatrician on the one hand and the otolaryngologist on the other, in an effort to arrive at the most accurate diagnoses in all these cases and institute the most rational treatment.

Many of these cases are elusive; they are hard to discover; they are hard to uncover. Diagnosis in many of these cases is frequently exceedingly difficult, but upon an accurate diagnosis the welfare of the patient absolutely depends.

Again I want to thank you gentlemen for the interest you have taken in the subject. It was a pleasure to me to hear the discussions.

## LIST OF OFFICERS OF THE TENNESSEE STATE MEDICAL ASSOCIATION

President—Dr. John B. Steele, Chattanooga.  
 Vice President for East Tennessee—Dr. C. R. Thomas, Chattanooga.  
 Vice President for Middle Tennessee—Dr. J. W. Wilkes, Columbia.  
 Vice President for West Tennessee—Dr. N. S. Walker, Dyersburg.  
 Secretary—Editor—Dr. H. H. Shoulders.  
 Assistant Secretary—Editor—Dr. W. M. Hardy.

## TRUSTEES

Chairman and Treasurer—Dr. C. M. Hamilton, Doctors Building, Nashville.  
 Dr. W. L. Williamson, 915 Madison Avenue, Memphis.  
 Dr. E. R. Zemp, Walnut Street, Knoxville.

## COUNCILORS

First District—Dr. L. E. Dyer, Greeneville.  
 Second District—Dr. S. R. Miller, Knoxville.  
 Third District—Dr. J. H. Revington, Chattanooga.

Fourth District—Dr. J. T. Moore, Algood.  
 Fifth District—Dr. John W. Sutton, Petersburg.  
 Sixth District—Dr. L. W. Edwards, Nashville.  
 Seventh District—Dr. C. D. Walton, Mt. Pleasant.  
 Eighth District—Dr. J. R. Thompson, Jackson.  
 Ninth District—Dr. E. H. Baird, Dyersburg.  
 Tenth District—Dr. W. B. Burns, Memphis.

Speaker of the House of Delegates—Dr. E. R. Zemp, Knoxville.

Delegates to the American Medical Association—

Dr. E. G. Wood, Knoxville; East Tennessee.  
 Dr. H. H. Shoulders, Nashville; Middle Tennessee.  
 Dr. H. B. Everett, Memphis; West Tennessee.

Alternates—

Dr. E. T. Newell, Chattanooga; East Tennessee.  
 Dr. J. O. Manier, Nashville; Middle Tennessee.  
 Dr. E. C. Ellett, Memphis; West Tennessee.

## OFFICERS OF COUNTY MEDICAL SOCIETIES FOR THE YEAR 1935

| COUNTY                   | PRESIDENT                             | VICE PRESIDENT                        | SECRETARY-TREASURER              |
|--------------------------|---------------------------------------|---------------------------------------|----------------------------------|
| Anderson                 | Thomas Jennings, Clinton              | Edward Dickson, Coal Creek            | J. S. Hall, Clinton              |
| Bedford                  | W. T. Sharpe, Farmington              | Alfred Farrar, Shelbyville            | W. H. Avery, Shelbyville         |
| Blount                   | C. C. Vinsant, Maryville              | L. C. Olin, Maryville                 | H. A. Calloway, Maryville        |
| Bradley                  | Vance H. Bell, Cleveland              | D. N. Arnold, Cleveland               | Wm. A. Garrett, Cleveland        |
| Campbell                 | A. L. Lawson, Elk Valley              | G. M. Rogers, LaFollette              | F. J. Slemmons, Jellico          |
| Carroll                  |                                       |                                       | J. H. Williams, McKenzie         |
| Carter                   | E. T. Pearson, Elizabethton           | J. B. Shoun, Elizabethton             | E. L. Caudell, Elizabethton      |
| Chester, Henderson,      |                                       |                                       |                                  |
| Decatur                  | C. H. Johnston, Lexington             |                                       | L. C. Smith, Henderson           |
| Cocke                    | J. A. P. Shields, Hartford            |                                       | J. E. Hampton, Newport           |
| Cumberland               | E. W. Mitchell, Crossville            |                                       | V. L. Lewis, Crossville          |
| Davidson                 | W. G. Kennon, Nashville               | H. S. Shoulders, Nashville            | J. P. Gilbert, Nashville         |
| Dickson                  | L. F. Loggins, Charlotte              |                                       | R. P. Beasley, Dickson           |
| Dyer, Lake, and Crockett | E. H. Baird, Dyersburg                | P. E. Miller, Tigrett (Dyer)          | C. L. Denton, Dyersburg          |
|                          |                                       | R. C. Newkirk, Tiptonville (Lake)     |                                  |
|                          |                                       | J. O. McKinney, Friendship (Crockett) |                                  |
|                          |                                       | L. D. McAuley, Oakland                | A. Richards, Bolivar             |
| Fayette and Hardeman     | John Morris, Somerville               |                                       | J. P. Sloan, Jamestown           |
| Fentress                 |                                       |                                       | John P. Grisard, Winchester      |
| Franklin                 | W. F. Smith, Decherd                  | A. P. Smith, Winchester               | F. L. Roberts, Trenton           |
| Gibson                   | P. D. Jones, Milan                    | L. H. Montgomery, Trenton             | T. F. Booth, Pulaski             |
| Giles                    | Joe B. Wright, Lynnville              | R. E. Warren, Pulaski                 | C. P. Fox, Jr., Greeneville      |
| Greene                   | L. E. Dyer, Greeneville               | M. A. Blanton, Mosheim                | T. F. Taylor, Monteagle          |
| Grundy                   | D. H. Bryan, Monteagle                | O. H. Clements, Palmer                | J. F. Campbell, Morristown       |
| Hamblen                  | P. L. Henderson, Morristown           | P. L. Brock, Morristown               | W. J. Sheridan, Chattanooga      |
| Hamilton                 | James L. Bibb, Chattanooga            | D. N. Williams, Chattanooga           |                                  |
| Hardin, Lawrence, Lewis, |                                       |                                       |                                  |
| Perry, Wayne             | G. N. Springer, Hohenwald             |                                       | C. C. Stockard, Lawrenceburg     |
| Haywood                  | W. D. Poston, Brownsville             | A. H. Sorrelle, Brownsville           | Roy M. Lanier, Brownsville       |
| Henry                    | A. F. Paschall, Puryear               | Elroy Scruggs, Paris                  | R. Graham Fish, Paris            |
| Hickman                  | L. F. Pritchard, Only                 |                                       | W. K. Edwards, Centerville       |
| Humphreys                |                                       |                                       | W. W. Slayden, Waverly           |
| Jackson                  | J. D. Quarles, Whitleyville           | R. C. Gaw, Gainesboro                 | F. B. Clark, Gainesboro          |
| Knox                     | Eugene Abercrombie, Knoxville         | W. F. Christenberry, Knoxville        | Jesse C. Hill, Knoxville         |
| Lauderdale               | J. L. Dunnavant, Ripley               | T. E. Miller, Ripley                  | J. R. Lewis, Ripley              |
| Macon                    | D. D. Howser, Lafayette               |                                       | J. Y. Freeman, Lafayette         |
| Madison                  |                                       |                                       | S. M. Herron, Jackson            |
| Maury                    | E. M. Ragsdale, Columbia              | D. B. Andrews, Columbia               | C. D. Walton, Mt. Pleasant       |
| McMinn                   | R. W. Epperson, Athens                | S. B. McClary, Sr., Etowah            | L. A. Brendle, Englewood         |
| McNairy                  | John R. Smith, Selmer                 | G. B. Curry, Selmer                   | H. C. Sanders, Selmer            |
| Monroe                   | T. M. Roberts, Sweetwater             |                                       | W. J. Cameron, Sweetwater        |
| Montgomery               |                                       |                                       | Paul E. Wilson, Clarksville      |
| Overton                  |                                       |                                       | A. B. Qualls, Livingston         |
| Polk                     | H. P. Hyde, Copperhill                | W. Y. Gilliam, Copperhill             | F. O. Geisler, Isabella          |
| Putnam                   | Z. L. Shipley, Cookeville             | J. Fred Terry, Cookeville             | Thurman Shipley, Cookeville      |
| Roane                    | L. A. Killefer, Harriman              | R. F. Register, Rockwood              | W. W. Hill, Harriman             |
| Robertson                | W. Foster Fyke, Springfield           |                                       | W. S. Rude, Ridgeway             |
| Rutherford               | J. D. Hall, Readyville                |                                       | J. A. Scott, Murfreesboro        |
| Scott                    |                                       |                                       | D. M. Woodward, Winona           |
| Sevier                   | O. H. Yarberry, Sevierville           | R. G. Henderson, Memphis              | C. P. Wilson, Sevierville        |
| Shelby                   | Jas. B. Stanford, Memphis             |                                       | A. F. Cooper, Memphis, Secretary |
|                          | R. F. Mason, Memphis, President-Elect |                                       | J. J. Hobson, Memphis, Treasurer |
| Smith                    | R. E. Key, Monroville                 | Rhea E. Garrett, Dixon Springs        | Thayer S. Wilson, Gordonsville   |
| Sullivan and Johnson     | W. R. Rogers, Bristol, Va.            | L. C. Cox, Kingsport (Sullivan)       | Arthur Hooks, Bristol, Tenn.     |
|                          |                                       | J. C. Hutchenson, Crandall (Johnson)  |                                  |
| Sumner                   | J. J. Gwin, Hartsville                | R. N. Buchanan, Hendersonville        | Hommer Reese, Gallatin           |
| Tipton                   | A. J. Butler, Covington               | J. J. Fleming, Atoka                  | H. C. Currie, Covington          |
| Warren                   |                                       |                                       | John S. Harris, McMinnville      |
| Washington               | J. W. Wallace, Johnson City           | E. T. Brading, Johnson City           | Carroll H. Long, Johnson City    |
| Weakley                  | R. W. Brandon, Martin                 | H. G. Edmonson, Martin                | P. W. Wilson, Dresden            |
| White                    | S. E. Gaines, Sparta                  | Vernon Hutton, Ravenscroft            | A. F. Richards, Sparta           |
| Williamson               | T. C. Rice, Franklin                  | R. H. Hutchison, Franklin             | K. S. Howlett, Sr., Franklin     |
| Wilson                   | J. L. Ames, Lebanon                   | C. C. Young, Alexandria               | S. B. McFarland, Lebanon         |



# *Your Physician*

By FLORENCE FISHER PARRY

● Nothing can take his place—not priest nor minister nor all the clinics that science can provide. ● There is a rapport and a confidence between him and his patient which has been known to accomplish Miracles, and restore to the breasts of mothers babies about to die, and to the arms of lovers, beloved turned back from Death. ● For there's something about the very presence of the Family Doctor that casts out fear, melts apprehension, breaks down suspense, performs the simple miracle of Faith. ● We know how hard the life is that he's chosen. We know that he's abused, imposed upon, worn; that his days are not his own, and his nights are snatched and torn. And, we wonder, where are his rewards? What compensation is his? Oh, I think he is greatly repaid; greatly to be envied. His rewards are kingly prizes. The prize of WELCOME. That's a great reward. To have one's presence a blessing. To know that the mere SIGHT of you brings heart's ease; stirs the wan pulse, brightens the fading eye. ● The prize of CONQUEST. All men like that. Winning against odds. To stay a fever; energize a pulse; throw breast-works against the advance of disease. Here, indeed, are paths of Glory that do not lead to the grave, but AWAY from it. I cannot think of greater conquest. ● The prize of CONFIDENCE. That's a proud possession. Some priests know it; some ministers; and Friends, if they're time tried. But the Family Doctor is the final confessional, a refuge not only for repentant hearts, but sick and craven hearts as well. ● The prize of HUMAN WISDOM—that deep knowledge that comes from being continually exposed to the pitiful frailties of mankind. You do not deceive the Family Doctor; you do not attempt to. But knowing you, he is still compassionate; for he has learned to expect little of greatness in his fellow man. ● Above all, I think I envy him his prize of SELFLESSNESS. He is FREE, for he has already given up his life, so has nothing left to fetter him. ● There is much talk of state control of medicine; and legislation dips its partial fingers into the sterile waters of our doctors, seeking to arbitrate over their mission of mercy. I Dare Say there are certain restricted fields of medicine in whose confines the legislative hand could work productively. But the ineffable value of the HUMAN TOUCH in medicine is something that transcends all legislation. ● What legislation indeed, what politics, what state control or organized social program, can hope to substitute that HUMAN BOND that exists between the FAMILY DOCTOR and his patient?

From Florence Fisher Parry's column, "I Dare Say," written after seeing Petrolagar's exhibit, "The Doctor," and reproduced by courtesy of the Pittsburgh Press. Petrolagar Laboratories, Inc., Chicago

# THE JOURNAL

OF THE

## TENNESSEE STATE MEDICAL ASSOCIATION

Devoted to the Interests of the Medical Profession of Tennessee  
Office of Publication, 510 Doctors Bldg., Nashville, Tenn.

Acceptance for mailing at special rate of postage provided for  
in Section 1103, Act of October 3, 1917,  
authorized July 15, 1932.

H. H. SHOULDERS, M.D., Editor and Secretary

JUNE, 1935

## EDITORIAL

### YOUR PHYSICIAN

We wish to acknowledge our indebtedness to the Petrolagar Laboratories, Chicago, for the privilege of running the story, entitled, "Your Physician," which appears on the opposite page.

It is said that the story was inspired by the picture, "The Doctor," which was in the medical exhibit at the Century of Progress, Chicago.

It is believed that the profession of the state will enjoy it.

### OBSTETRIC SERVICE IN RURAL COMMUNITIES

At the request of and in cooperation with the Gibson County Medical Society the JOURNAL is carrying "Study of Maternity Care in Gibson County," by Dr. Maxwell E. Lapham.

This report covers a study which extended over a considerable period of time and embraces every phase of obstetric practice in a county with a population distributed in such a way as to be fairly representative of the better counties in the state.

This is published with the idea that it will improve obstetric practice.

## RESOLUTIONS

WHEREAS, Dr. H. T. Collier, one of the charter members and a former officer of the Tri-County Medical Society, died at his home in McKenzie, Tennessee, May 4, 1935, we wish to express our gratitude for his loyal fellowship and devotion to his profession.

Dr. Collier, who died at the age of 60, graduated from Tulane University Medical School, New Orleans, in 1900. He was a member of the Tri-County Medical Society, the Tennessee Medical Association, the Mid-South Medical Association, and the Southern Medical Association.

His death removes from our profession a valued member and from our community an eminent citizen. We who knew him have every reason to mourn the loss of a friend and colleague. We will miss his counsel and assistance.

In recognition of his character and service, the Tri-County Medical Society extends to the family and relatives of Dr. Collier its deep sympathy in their loss.

Therefore, be it resolved, that a copy of these resolutions be sent to the family, a copy to the TENNESSEE MEDICAL JOURNAL, and that a copy be written into the minutes of the Tri-County Medical Society.

(Signed)

E. M. ALEXANDER, M.D.

GEO. D. BOONE, M.D.

Committee.

(Approved by the Tri-County Medical Society.)

V. E. MASSEY, M.D.

Secretary.

## DEATHS

Dr. Robert Paine, Memphis; Jefferson Medical College of Philadelphia, 1917; aged 43; died May 26th.

## NEWS NOTES AND COMMENTS

Dr. H. P. Hyde, of Copperhill, has just completed a two-months postgraduate course at Tulane.

The International Medical Assembly announce their next meeting at Detroit, October 12-19. For full information write Dr. W. B. Peck, Managing Director, Freeport, Illinois.



## STANDING COMMITTEES

## COMMITTEE ON SCIENTIFIC WORK

H. H. Shoulders, Chairman, Nashville  
 A. F. Cooper, Memphis  
 W. J. Sheridan, Chattanooga  
 Jesse C. Hill, Knoxville

COMMITTEE ON PUBLIC POLICY AND  
LEGISLATION

Battle Malone, Memphis (five years)  
 L. W. Edwards, Chairman, Nashville (four years)  
 Tom Barry, Knoxville (three years)  
 T. R. Ray, Shelbyville (two years)  
 Robert Sullivan, Nashville (one year)

## COMMITTEE ON EDUCATION

O. S. Warr, Chairman, Memphis (three years)  
 R. B. Wood, Knoxville (three years)  
 W. G. Kennon, Nashville (two years)  
 J. Marsh Frere, Chattanooga (two years)  
 W. O. Baird, Henderson (one year)  
 J. M. Lee, Nashville (one year)

## LIAISON COMMITTEE

Hiram A. Laws, Chattanooga (four years)  
 Tom Mitchell, Memphis (three years)  
 J. L. Raulston, Knoxville (two years)  
 W. C. Dixon, Chairman, Nashville (one year)  
 W. P. Wood, Knoxville (five years)

STATE TUBERCULOSIS HOSPITAL  
COMMISSION

W. S. Rude, Chairman, Ridgetop  
 O. N. Bryan, Nashville  
 C. M. Oberschmidt, Memphis  
 J. L. Hamilton, Chattanooga

## HOSPITAL COMMITTEE

D. R. Pickens, Chairman, Nashville  
 E. H. Baird, Dyersburg  
 B. L. Jacobs, Chattanooga  
 Kyle Copenhagen, Knoxville  
 J. A. McIntosh, Memphis  
 Lee Gibson, Johnson City

ADVISORY COMMITTEE TO THE WOMAN'S  
AUXILIARY

Oliver W. Hill, Knoxville  
 Matt Murfree, Murfreesboro  
 W. W. Campbell, Memphis

*Dr. Shoulders:*

We are finding it absolutely necessary to get behind trees on Reelfoot Lake to get bait on the hooks; otherwise the fish will hurt you. Call Carter Williams and Ruben Gayden (both classmates of mine) and come over for the week-end, Saturday, June 15. If by any chance you could get Dr. Billy Witt to come along do so. Tell him I will have his old schoolmate, Dr. Joe Wynne, to join the party. I sincerely would like to have Dr. Witt come over.

Regards,

C. L. DENTON.

Dr. W. Blair Mosser, Corresponding Secretary of the American Association for the Study of Goiter, has sent us a tentative program of the association's next meeting. The place of the meeting is Salt Lake City, date June 24, 25, 26. Full particulars can be obtained by addressing Dr. Mosser at Kane, Pennsylvania.

## MEDICAL SOCIETIES

*Blount County:*

The society meets every Thursday at 8:00 P.M. at the Blount National Bank Building. The remaining programs for this month are as follows:

June 20—"Indications for and Means of Birth Control," by Dr. A. L. Jones. To open discussion—Dr. A. M. Gamble.

June 27—"Nonspecific Urethritis," by Dr. J. A. McCulloch. To open discussion—Dr. W. C. Crowder.

*Carroll, Henry, and Weakley Counties:*

The Tri-County Medical Association, composed of Carroll, Henry, and Weakley Counties, met at the Hotel Lynn, McKenzie, May 14. The program was as follows:

"Prenatal Care," by Dr. Walter Ruch, Memphis.

"Treatment of Circulatory Emergencies," by Dr. Lyle Motley, Memphis.

"Appendicitis During Pregnancy," by Dr. J. L. McGhee, Memphis.

*Davidson County:*

The society has adjourned for June, July, and August. At recent meetings, programs were as follows:

May 14—"Obstructive Pericarditis," by Dr. C. S. Burwell and Dr. Alfred Blalock. Discussion opened by Dr. W. H. Witt.

May 21—"Ovarian Tumors with a Review of 358 Cases from Gyn. Service of the Nashville General Hospital for Past Ten Years," by Dr. Dewey Foster. Discussion opened by Dr. W. C. Dixon.

May 28 — "Traumatic Arteriovenous Fistula of the Extremities, with Report of Two Cases," by Dr. J. C. Gardner. Discussion opened by Dr. Barney Brooks.

*Dyer, Lake, and Crockett Counties:*

The regular monthly meeting of the Dyer, Lake, and Crockett County Medical Society was held in Dyersburg, June 5, 1935.

## Scientific Program:

1. "Case Report—Appendicitis Complicating Full Term Pregnancy." Dr. J. Paul Baird, Dyersburg.

2. "Case Report — Caesarean Section." Dr. E. H. Baird, Dyersburg.

3. "Recent Advances in Gynecology and Obstetrics." Dr. W. L. Williamson, Memphis.

4. "Immunology." Dr. W. R. Blue, Memphis.

The meeting was most instructive. Thirty members attending.

C. L. DENTON, *Secretary.*

*Four-County Medical Society:*

On May 21, physicians of Bradley, McMinn, Monroe, and Roane Counties met at Athens. Each of these counties has its medical society, but during the hot season joint meetings are held in the four county seats. Forty physicians were at the Athens meeting. In addition to those listed on the program Dr. John Steele, President of the State Association, addressed the meeting. Everyone enjoys these large meetings, and these joint meetings are gaining in popularity and usefulness.

The following papers were read:

"Obstetrics in General Practice," by Dr.

W. R. Arrants, Athens. Discussion by Drs. L. L. Barnes, Sweetwater, and W. S. Stanberry, Charleston.

"Pyelitis, Diagnosis and Treatment," by Dr. Vance Bell, Cleveland. Discussion by Drs. C. O. Foree, Athens, and F. A. Neergaard, Harriman.

"Indigestion," by Dr. R. C. Kimbrough, Madisonville. Discussion by Drs. J. J. Waller, Oliver Springs, and S. B. McClary, Etowah.

"Pneumothorax as Treatment in Pulmonary Tuberculosis," by Dr. Robert Wood, Knoxville.

"Complications of Influenza," by Dr. John Roberts, Kingston. Discussion by Drs. Claude Taylor, Cleveland, and J. A. Hardin, Sweetwater.

"Diagnosis and Treatment of Sinus Infection," by Dr. G. W. Burchfield, Maryville, and E. R. Ferguson, Cleveland.

Physicians present at the Four-County Medical Meeting in Athens, May 21, 1935: Drs. J. B. Steele, Chattanooga; C. O. Foree, Athens; W. E. Foree, Athens; L. L. Barnes, Sweetwater; W. R. Arrants, Athens; G. W. Birchfield, Maryville; W. J. Abel, Decatur; D. W. Cowgill, Madisonville; N. C. Shearer, Madisonville; C. H. Taylor, Cleveland; H. F. Taylor, Calhoun; T. M. Roberts, Sweetwater; S. B. McClary, Jr., Etowah; S. G. Saunders, Loudon; J. J. Waller, Oliver Springs; J. R. Nankivell, Athens; G. D. Lequire, Maryville; Joseph McGahhey, Niota; R. B. Wood, Knoxville; W. S. Moore, Etowah; J. L. McClary, Cleveland; J. A. Hardin, Sweetwater; B. W. Bagwell, Madisonville; R. W. Epperson, Athens; W. J. Cameron, Sweetwater; W. C. Sanford, Cleveland; D. N. Arnold, Cleveland; C. T. Speck, Cleveland; Vance A. Bell, Cleveland; S. B. McClary, Etowah; Ralph Monger, Knoxville; R. M. Price, Sweetwater; Hugh M. Reaves, Knoxville; D. F. Seay, Englewood; J. Gilbert Eblen, Knoxville; L. A. Brendle, Englewood; Chas. F. Clayton, Knoxville; J. O. Nichols, Etowah; R. C. Kimbrough, Madisonville; Troy Bagwell, Knoxville.

*Hamilton County:*

During June, July, and August, meetings



are held on the first Thursday of the month. On July 4th, Dr. J. W. Kirkpatrick will discuss "Acute Abdominal Pain," and Dr. E. H. Magee's subject is "Rat Bite Fever—Case Reports."

*Hardin, Lawrence, Lewis, Perry, and Wayne Counties:*

The Five-County Society met May 28, at Waynesboro. A good attendance heard the following program:

"Acute Otitis," by Dr. J. W. Danley, Lawrenceburg. Discussion opened by Dr. T. J. Stockard, Lawrenceburg.

"Surgery of the Stomach and Duodenum," by Dr. L. W. Edwards, Nashville. Discussion opened by Dr. J. H. Tilley, Lawrenceburg.

"Allergy in General Practice," by Dr. Clarence S. Thomas, Nashville. Discussion opened by Dr. J. T. Keeton, Clifton.

"Colitis," by Dr. L. C. Harris, Lawrenceburg. Discussion opened by Dr. D. L. Wood, Waynesboro.

*Knox County:*

We are having good papers, large crowds, and big times. What more could one want?

May 14—Dr. Long, "Chronic Arthritis." Discussion by Drs. Weber, Brown, Pope, Rule, Roberts, and Copenhaver.

May 27 — Dr. J. R. Hamilton, "Otitis Media." Discussion by Drs. Ford, Reese, Patterson, Grubb, Cunningham, and LeTeller.

June 4—Dr. Jarrell Penn, "Fractures of Shaft of the Femur." Drs. S. R. Miller, Cates, Bagwell, and Robert Patterson led the discussion.

*Lauderdale County:*

The Lauderdale-Haywood County Medical Society held its regular monthly session at the Ripley courthouse June sixth. The guest speakers were Dr. W. L. Williamson and Dr. E. G. Thomas, both of Memphis.

*Lincoln County:*

The regular monthly meeting was held on June fourth. Dr. W. W. Hubbard, of Nashville, read a paper on "The Use of Pneumo-

thorax in Treating Pulmonary Diseases," and Dr. Murray B. Davis, Nashville, presented a paper, entitled, "Abdominal Pain."

*Putnam, White, Overton, Cumberland, and Jackson Counties:*

Doctors of these five counties meet every second month, going from one county to another. Good programs are presented and attendance is increasing. Dr. J. Bates Henderson is the secretary; Dr. Z. L. Shipley, the president; and Dr. E. W. Mitchell, vice-president.

*Shelby County:*

The Memphis and Shelby County Medical Society met June fourth. The following papers were read:

"Enterostomy," by Dr. G. A. Coors. Discussion led by Drs. Casa Collier and J. L. McGehee.

Case Report: "Empyema Necessitatis," by Dr. F. W. Fielder.

Presentation of portrait of Mr. W. B. Rogers to University of Tennessee, College of Medicine—Dr. J. A. Crisler. Acceptance for the University—Dr. J. B. McElroy.

## OTHER MEDICAL SOCIETIES

*The Upper Cumberland Medical Society:*

On June 4 and 5 the forty-first annual meeting was held at Red Boiling Springs. An interesting program was presented.

Officers for next year are Drs. E. B. Clark, Sparta, President; F. B. Clark, Gainesboro, first vice-president; Claude E. Tubb, Sparta, second vice-president; H. C. Hesson, Red Boiling Springs, third vice-president; Z. L. Shipley, Cookeville, secretary, and R. E. L. Smith, Doyle, treasurer.

The group will meet again next year at Red Boiling Springs.

*West Tennessee Medical and Surgical Association:*

The forty-fourth annual session was held at Dyersburg on May 16. The program was enjoyed by a large number of physicians.

Officers for the coming year are Drs. J. L. McMillan, Decaturville, president; L. C. Smith, Henderson, vice-president; W. L. Summers, Ridgeley, vice-president; George McSwain, Paris, secretary; and John Jackson, Dyer, assistant secretary.

The next meeting will be at Jackson.

---

*Middle Tennessee Medical Association:*

On May 9 and 10, the association was in session at Pulaski. The next meeting will be at Lewisburg in November.

Dr. N. S. Shofner, Nashville, was elected president; Dr. Joe Wright, of Lynnville, vice-president, and Dr. D. W. Smith, Nashville, reelected secretary.

---

*Vanderbilt University Medical Society:*

May 3, 1935

1. Case Report:

A Case of Acute Yellow Atrophy Occurring in the Last Trimester of Pregnancy with Fatal Termination—Dr. G. S. McClellan.

A 25-year-old white woman, gravida V, para III, was admitted to the hospital on the sixth day of her illness markedly jaundiced. Previous to admission the patient had been nauseated, vomited and complained of severe epigastric pain. She was at term and delivered spontaneously a living child on the day of admission. The Kahn test was positive and she had received antisyphilitic treatment four months previously. Jaundice increased, she became edematous, comatose and died on the fifth postpartum day. Autopsy showed typical findings of acute yellow atrophy of the liver.

Case discussed by Drs. Goodpasture, Harris, and Morgan.

2. Pathogenicity Tests and Complement Fixation Tests with Various Strains of *Endamoeba histolytica*—Drs. Henry E. Meleney and William W. Frye.

The pathogenic activity of twelve strains of *E. histolytica* has been tested by kitten inculcations. A wide difference has been found between different strains, the least pathogenic strain coming from a monkey and the most pathogenic from human cases

in Chicago. Preliminary experiments in dogs tend to corroborate these findings. Complement fixation reactions for amoebiasis in infected monkeys are negative in the absence of pathological lesions. Dogs developed positive reactions with the appearance of infection. Eleven out of twelve persons harboring *E. histolytica* without symptoms gave positive reactions. One person suffering from a bloody diarrhea without amoebae gave a positive reaction suggesting amoebic infection.

Paper discussed by Drs. Morgan and Goodpasture.

3. The Reaction of the Tissues to Injections of Lecithin—Dr. Edna H. Tompkins.

In tuberculosis and following subcutaneous injections of various foreign substances, monocytes and clasmotocytes undergo degenerative changes leading to the formation of epithelioid cells. In contrast, the clasmotocytes of syphilitic lesions evince physiologic hyperactivity. Subcutaneous injection of lecithin prepared from egg yolk elicited a production of clasmotocytes similar to those in syphilitic lesions. Lipoids prepared from spinal cord were more effective than the lecithin. Both substances were quickly removed from the tissues without residual reaction.

Paper discussed by Drs. Cunningham and Morgan.

---

*Black Patch Medical Society:*

Dr. W. B. Dye of Springfield was elected president of the Black Patch Medical Society at its bimonthly session June 5 at Idaho Springs Hotel, Clarksville. He succeeds Dr. Maurice Hughes of Clarksville.

Dr. Paul Wilson of Clarksville was elected vice-president to succeed Dr. W. F. Fyke of Springfield, and Dr. Bryce Runyon of Clarksville was made secretary-treasurer to succeed Dr. W. S. Rude of Ridgetop.

The society, which observed its first anniversary at this meeting, will hold its next session at Perry Park, Springfield, in July. It comprises Robertson, Montgomery, Houston, Cheatham, and Stewart Counties.



## WOMAN'S AUXILIARY

President.....Mrs. R. G. Reaves  
Knoxville

President-Elect.....Mrs. Theodore Morford  
Nashville

Press and Publicity.....Mrs. W. O. Floyd  
Nashville

### REPORTS OF LOCAL AUXILIARIES

Davidson County—Mrs. B. F. Byrd, President.

The annual business meeting of the Woman's Auxiliary to the Nashville Academy of Medicine and Davidson County Medical Society was held on Friday, May 3, at the Y. W. C. A. Mrs. B. F. Byrd, president, presided over the meeting which concluded the fiscal year of the auxiliary.

Mrs. W. C. Bilbro, Jr., was elected president. Following the report of Mrs. Herschel Ezell, chairman of the nominating committee, other officers elected were: Mrs. W. F. Fessey, vice-president; Mrs. J. P. Gilbert, corresponding secretary; Mrs. H. B. Brackin, recording secretary; and Mrs. Joseph Travenack, treasurer.

A feature of the meeting was a talk on "Reminiscences of Eleven Years' Practice in the Foreign Field," by Dr. Oscar G. Nelson. Dr. Nelson spoke enthusiastically of his work there, the greater portion of which was spent in the interior of China. Mrs. C. S. McMurray favored us with several cello numbers. She was accompanied at the piano by Mrs. Travenack.

Mrs. Byrd spoke briefly of her year's work, stating that a detailed report had been filed with the secretary and a copy sent to the Chairman of the Advisory Council. She expressed appreciation to her "official family" and to the membership for faithful service rendered.

Congratulations were extended to the new officers, who will assume their duties at the annual picnic to be held in June at Camp Buffalo Gap, summer home of Dr. and Mrs. W. W. Wilkerson, Jr.

Rutherford County — Mrs. Matt Murfree, President.

Congratulations to the new county for such a splendid initial meeting! Quoting from an article in the Murfreesboro *News Banner*, we have the following account:

"Mrs. Matt Murfree presided over the meeting of the Woman's Auxiliary to the Stone's River Academy of Medicine held Friday, May 17, at her home in Murfreesboro. The following committees were announced: Mrs. J. B. Black and Mrs. John Cason, program; Mrs. J. F. Adams, Mrs. M. B. McCrary, and Mrs. S. H. Bratten of Woodbury, constitution and by-laws; Mrs. J. A. Scott and Mrs. W. B. Sandford, telephone; and Miss Mary Hall, honorary membership. Mrs. W. T. Robinson, secretary, read the minutes of the organizational meeting.

"Mrs. J. F. Adams extended an invitation to the members of both the academy and the auxiliary to a picnic at the Adams' farm, the date to be announced later.

"The educational feature of the meeting was the discussion led by Mrs. Murfree on the memorial being erected to Jane Todd Crawford, at Danville, Ky., as the first woman in the world ever to undergo a surgical operation. Mrs. Murfree reviewed the history of Mrs. Crawford, and stated that the operation was performed by Dr. Ephraim McDowell without anesthetic in the year 1809. She spoke of the ceremony which will be held in connection with the memorial on May 30 at Danville.

"Mrs. Earl Roberts gave as the program feature of the afternoon a reading of Sir James M. Barrie's, 'Seven Women.' At the conclusion of the meeting the hostess served a dainty afternoon course."

---

### NATIONAL CONVENTION

Attention is called to the thirteenth annual meeting of the Woman's Auxiliary to the American Medical Association at Atlantic City, New Jersey, June 10-14, 1935. An interesting account of the meeting appears in the American Medical Association *Bulletin*, the program of which reads as follows:

# THE WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

## *Program for the Atlantic City Meeting Sunday, June 9*

7:00 p.m. Dinner to the National Board by the Woman's Auxiliary to the Medical Society of Delaware. Claridge Hotel.

### *Monday, June 10*

10:00 a.m. Preconvention Board Meeting. Library, Hotel Traymore.

1:00 p.m. National Board Luncheon. Submarine Grill, Hotel Traymore.

2:30 p.m. Preconvention Board Meeting. Library, Hotel Traymore.

7:00 p.m. Get Together Dinner. Ritz Carlton Hotel.

9:00 p.m. Reception and Musical honoring wives of members of the Canadian Medical Society. Ritz Carlton Hotel.

### *Tuesday, June 11*

8:00 a.m. Southern Breakfast.

9:00 a.m. General Meeting. Library, Traymore Hotel. Mrs. Robert W. Tomlinson, presiding.

1:00 p.m. Luncheon at Hackney's, followed by a chair ride or sailboat ride.

4:00 p.m. Tea. Woman's Auxiliary to the Philadelphia County Medical Society.

8:00 p.m. General Meeting of the American Medical Association. Auditorium.

### *Wednesday, June 12*

9:00 a.m. General Meeting. Library, Traymore Hotel. Mrs. Robert W. Tomlinson, presiding.

12:30 p.m. Reception and Auxiliary Luncheon. Main Dining Room, Traymore Hotel. Hygeia Pageant. Program sponsored by Woman's Auxiliary to Medical Society of New Jersey.

7:00 p.m. Special entertainment, movies, informal dance. Steel Pier.

### *Thursday, June 13*

9:00 a.m. Group discussions.

10:00 a.m. Postconvention Board Meeting. Mrs. R. N. Herbert, presiding.

1:00 p.m. Luncheon, card party and style show. Ritz Carlton Hotel.

7:00 p.m. "Bring Your Husband Dinner." Traymore Hotel.

9:00 p.m. President's Reception and Ball. Auditorium, Convention Hall.

### *Friday, June 14*

9:00 a.m. Golf Tournament. Northfield Country Club.

1:00 p.m. Golf Luncheon.

Golf privileges throughout the week.

## ABSTRACTS OF CURRENT LITERATURE

### ANESTHESIA

By HUGH BARR, M.D.  
Medical Arts Building, Nashville

Some Recent Advances in Anesthetics. P. K. Knoefel, M.D. The Journal of the Indiana State Medical Association, May, 1935.

It is apparent that much of the future development of anesthesia will come from the laboratory, not only in the discovery of new agents, but in finding better methods of administering the old ones. One of the greatest advances in recent years is the rebreathing of nitrous oxide with the absorption of carbon dioxide by caustic soda with the addition of sufficient oxygen required to maintain life. This method saves gas and prevents loss of body heat.

The author describes a two-way intratracheal tube which allows ether vapor to be administered under pressure. The recent trend has been to get away from the powerful anesthetics, such as ether and chloroform, and to resort to agents which, although weaker, are less damaging to the tissues, such as ethylene. Cyclopropane, a recently used agent, is more powerful than ethylene, but can be given with a higher percentage of oxygen. It is more dangerous than ethylene, but is very promising.

Divinyl ether is more active than ethyl ether, induction is more rapid, recovery is more rapid, is less irritating, and disturbs metabolism less. Barbiturates should only be given by mouth in moderate dosage and supplemented by a general anesthetic. Local anesthetics have a definite toxicity, and some other vasoconstrictor should be found to take the place of epinephrine.

Such an attempt has resulted in the product



called "Corbephrine," which is less toxic than epinephrine. To extend spinal anesthesia to the entire field of surgery is unwarranted.

## OPHTHALMOLOGY

By ROBERT J. WARNER, M.D.  
Doctors Building, Nashville

Can Blindness in One Eye Cause Photophobia? W. Comberg. *Archives of Ophthalmology*, May, 1935.

Comberg relates a number of instances in which a person with one blind eye and one normal eye suffered so from photophobia that he was handicapped in his work and was obliged to wear dark glasses. This symptom, Comberg points out, does not result from the action of light on the nerve endings of the cornea or the iris of the blind eye—an assumption not infrequently made in textbooks—but from a painful attempt of the sphincter of the iris in the blind eye to contract when light enters the pupil of the normal eye, in other words, from the consensual reaction to light. The contraction of the sphincter of the iris is painful, for in blind eyes there is often a residuum of uveal inflammation. While enucleation relieves the patient of photophobia, the same good effect may be obtained through continued use of a mydriatic in the blind eye.

## PEDIATRICS

By JOHN M. LEE, M.D.  
Doctors Building, Nashville

Brain Tumors in Childhood. Carl W. Rand, M.D., and R. J. Van Wagenen, M.D. *The Journal of Pediatrics*, March, 1935.

Brain tumor was the diagnosis in thirty-eight children admitted to the Children's Hospital of Los Angeles in a ten-year period. They ranged in age from ten months to twelve years. Symptoms had existed in these patients from one month to eight years. In the order of frequency they presented the following symptoms: persistent periodic vomiting, headache, disturbance of gait, convulsions, nystagmus, morning vomiting, ocular motor paralysis, failing vision, nausea.

Vomiting is persistent, without nausea, may be projectile. Vomiting from this cause seldom occurs during sleep. In all cases where vomiting persists over a week in a child an ophthalmic examination should be made.

Children rarely volunteer the complaint of headache, and if it is a frequent or persistent symptom in a child it demands serious consideration. The location of pain does not indicate the location of the tumor. Bradycardia from intracranial tumor does not occur as often in childhood as in adults.

Ataxia was the most frequent disturbance of gait. There may be stumbling, falling, lack of

ability, and loss of balance sense. Incoordination of the upper extremities may occur, but this is less frequent than incoordination in the lower extremities. Hemiplegic gait is less frequent in children with brain tumor than in adults.

Convulsions without fever should suggest brain tumor as a possible cause. They occur most frequently in children under two years of age. They are most always of serious import; only one of these children with brain tumors survived over three weeks after the onset of convulsions.

Nystagmus may come on late, is usually horizontal, and when associated with headache or vomiting is very significant.

Morning vomiting may occur for weeks or months before other symptoms appear. Persistence of this symptom should arouse suspicion of fourth ventricle tumor. It may not occur in the child unless he is allowed to be out of bed, as change of posture seems to be associated with this symptom. Nausea was infrequent.

Choked discs were observed in seventy-three per cent of these patients, but failing vision was the complaint in only eighteen per cent. In several cases the diagnosis was missed because ophthalmoscopic examination was not made. The importance of this examination is emphasized, and should always be made before prescribing glasses for a child.

Except for increase in pressure, present in seventy-three per cent of these patients, the spinal fluid was normal in two-thirds of the cases. The hazard of lumbar puncture in the presence of brain tumor is emphasized, and control of pressure by a manometer is advised.

Stereoscopic roentgenologic examinations are important. The most frequent significant findings are increased convolutional pressure atrophy and separation of the sutures. Ventriculography and encephalography are valuable diagnostic aids in selected cases.

Numerous tables and charts furnish valuable statistical data of this study.

## SURGERY—GENERAL AND ABDOMINAL

By BATTLE MALONE, II, M.D.  
1490 Monroe Avenue, Memphis

Acute Abdominal Injuries. Guilford S. Dudley, M.D., Bellevue Hospital, N. Y. *Surgical Clinics of North America*, April, 1935.

Severe abdominal injuries may be divided into those with and those without penetration of the abdominal wall.

The general principle may be laid down that any penetrating injury of the abdominal wall should be explored by a laparotomy at the earliest possible time compatible with the patient's general condition. Fluids and glucose should be administered by venoclysis or hypodermoclysis.

The abdomen should be explored, as a rule, through an upper or lower rectus muscle incision. The original wound should be cleared of all devitalized or potentially infected tissue.

A stab or bullet wound of the liver substance usually requires no drainage. If the hemorrhage from the liver is active, light gauze packing is employed and removed in five to seven days.

Penetrating wounds of the stomach should be closed with a continuous lock suture to unite the mucosa, and a superimposed seromuscular suture to peritonealize the surface. The posterior gastric wall should always be inspected by opening the lesser peritoneal cavity, and the pancreas examined carefully for injury. Pseudocysts of the pancreas may arise from such injuries.

Penetrating wounds of the spleen are reasonably uncommon and are handled similarly to rupture of this organ.

Penetrating wounds of the small intestines should be closed with two layers of sutures of No. 00 chromic gut, unless this impairs the continuity of the lumen. In that case a resection must be done.

Penetrating wounds of the large intestine are attended with a high mortality, due to the severity of the peritoneal infection. There is a tendency toward infection and subsequent leakage of the fecal content after suture closure of such wounds and consequently these are better handled by attaching the injured gut to the abdominal wall to form a colostomy, which can be closed at a later date.

In crushing types of abdominal injury, the spleen is the most commonly ruptured viscus. The symptoms of this condition are pain in left hypochondrium, referred pain in left shoulder, leucocytosis of 20,000 to 25,000 and shock. Total red blood cells and hemoglobin are not influenced immediately. Splenectomy is the treatment. This is done through a left upper abdominal split rectus muscle incision, or through an oblique incision, about one inch below and parallel with the free border of the costal margin. Care should be taken in applying clamps to the pedicle not to injure the tail of the pancreas or the fundus of the stomach, which lie in close proximity to the pedicle. Following splenectomy blood transfusion is indicated if the hemorrhage has been profuse.

In rupture of the liver small lacerations are sutured, but one of large extent is better controlled by packing. Patients with small lacerations recover readily, whereas those with large tears present an unfavorable prognosis.

Of the hollow intra-abdominal viscera, rupture of the small intestines is probably the most common. The tear is caused either by direct pressure of a large loop against the vertebral column, or by the so-called "blowout" mechanism. Rupture of both a small and large intestines may be consid-

ered together. The symptoms are nausea and usually vomiting, pain, local tenderness and rigidity, which may be board-like. This board-like rigidity, however, may be due to spasm of the injured musculature; hence in the absence of supportive evidence it should not be considered the sole indication for operative interference. If the rupture is small it is closed by a through-and-through suture of fine chromic gut and a superimposed seromuscular suture. If the blood supply is impaired by a more extensive tear, resection and end-to-end anastomosis are indicated, using the Murphy button. For drainage of the peritoneal cavity, soft sheet-rubber material should be used. The laparotomy wound is closed with interrupted through-and-through sutures of nonabsorbable material. Postoperatively continuous drainage through a Levine tube is instituted and 4,000 to 5,000 cc. of fluid given by venoclysis or hypodermoclysis in twenty-four hours.

With intraperitoneal ruptures of the urinary bladder, the opening is closed and an indwelling catheter left in the bladder for a few days. If the bladder is infected, peritoneal drainage should be instituted and a suprapubic cystostomy done. In extraperitoneal ruptures of a bladder, suture of the laceration is unnecessary, but drainage of the bladder cavity, the space of Retzius, and the contaminated cellular tissues is most important.

## UROLOGY

By TOM R. BARRY, M.D., F.A.C.S.  
Medical Building, Knoxville

Is a Catheter Ever Justified in Fractures of the Spine?  
Miley B. Wesson. Trans. Western Branch A. U. A., Vol. III, 1934.

In paralysis of the bladder due to spinal cord injuries, the bladder may become greatly distended without discomfort.

There are four methods of handling this condition:

1. Leave the bladder alone.
2. Cystotomy.
3. Intermittent catheterization.
4. Indwelling urethral catheter.

Catheterization is not an operation to be considered lightly. Walker analyzed 450 cases with cord injury. Of these, 179 died, all deaths being due to infection from catheterization. He stated that one catheterization might be sufficient to cause the whole damage.

Kidd stated that a cystotomy promoted cystitis, pyelitis, and stone formation.

Besley stated that after a ten-year regime of noncatheterization infection rarely occurred. He reported one patient with a bladder distended to



the umbilicus for two years without renal disturbance.

Infection was such a constant finding in these cases during the war that general orders forbade either catheterization or cystotomy.

Automatic emptying of cord bladder may be accomplished in 75 per cent of all cases. Cord bladders do not burst from distention. When an auto-

matic bladder is established, residual urine disappears, and there is no dribbling.

Presacral ganglionectomy has been done on these cases with splendid results.

In conclusion he states that an overdistended nonobstructed bladder will never tear; that, with morphine and a little patience, they will all overflow in 96 hours.

## DRUG ADDICTION

Absolute privacy. Hidden identity. Treatment one of gradual reaction. Appetite and sleep restored. Constipation corrected. Individual care. No withdrawal or mental symptoms. No drastic elimination. Call East 1488 or write 923 Cherokee Road for rates and folder.

•  
**THE STOKES HOSPITAL**  
LOUISVILLE, KY.

## Important to Your Babies!



Larsen "Freshlike" Strained Vegetables are first quality garden fresh vegetables cooked, strained and sealed under vacuum to protect vitamins and mineral salts. For further protection we seal in special enamel lined cans.

All Varieties  
**10c**  
Per Can

**LARSEN'S**  
"Freshlike"  
Strained Vegetables

**THE LARSEN COMPANY, Green Bay, Wis.**

# THE JOURNAL

OF THE

## TENNESSEE STATE MEDICAL ASSOCIATION

DEVOTED TO THE INTERESTS OF THE MEDICAL PROFESSION OF TENNESSEE

ISSUED MONTHLY, Under Direction of the Trustees

H. H. SHOULDERS, M.D., Secretary and Editor

W. M. HARDY, M.D., Asst. Secretary-Editor

OFFICE OF PUBLICATION, 510 DOCTORS BUILDING, NASHVILLE, TENNESSEE

Volume XXVIII

JULY, 1935

No. 7

### THE X-RAY AS AN AID TO THE GENERAL PRACTITIONER\*

HUGH G. REAVES, M.D., Knoxville

NATURALLY I feel that the ways in which X-ray can be of assistance to you are far too numerous to even mention them all in any twenty-minute discussion. If your knowledge of radiology is too limited, you will be unable to enjoy the close cooperation with your radiologist which you would find very valuable in the management of many of your cases.

The tendency with many of you is to consider roentgenology as merely a technical branch of medicine. This is true only when it is practiced by the unqualified. May I digress here to express the opinion that incompetent X-ray work is worse than none at all. It may lead you astray, when you would have arrived at a correct diagnosis had you been dependent upon the clinical aspect of the case alone. Do not take for granted the qualifications of your radiologist. In diagnostic work competency applies equally to the choice of the type of examination to be made in any particular case, the ability to produce good films, and the ability to interpret findings and transcribe them into terms of clinical pathology or disturbed physiology. X-ray and radium therapy in the hands of the unqualified not only disappoint you by failing to produce the expected results, but are dangerous. The education and training of a radiologist must fit him to act as a consultant, not merely a technician. In the past it has not always

been easy for you to determine the qualifications of the individual radiologist. You now have a standard by which to judge him. An American Board of Radiology has been established for the purpose of examining applicants (regardless of the length of time they may have been in practice) in the various phases of radiology and issuing them certificates if they are found to be competent.

As the second essential we must foster the understanding of radiology by physicians, generally, and secure their constant cooperation on the individual diagnostic problems which they refer to us. In order that you may render the best service to your patient, you should know those conditions in which X-ray can be of aid to you and those conditions in which it offers no assistance. I have one clinician who calls me, relates the clinical aspects of his case, and asks what type of X-ray examination, if any, will help him to arrive at a diagnosis. This is as it should be. Present the diagnostic problem and the provisional diagnosis to the roentgenologist, and permit him to plan the roentgen examination that may be indicated. Then, in reality, he is a consultant. It is also important in many cases that the clinician discuss the case with the roentgenologist after the roentgen examination has been made, in order that the X-ray findings may be properly correlated with the clinical aspects of the case.

The opinion that a roentgenologist should make his diagnosis from the X-ray findings

\*Read before the Tennessee State Medical Association, Nashville, April 9, 10, 11, 1935.



alone, without any knowledge of the clinical manifestations of the case, is erroneous. You should not request merely an examination of the chest. Give him some indication of the question to be solved, whether it be mediastinitis, mediastinal glands, cardiac or aortic pathology, pleurisy or pulmonary pathology. Such help may enable him to be of more assistance to you by giving a more intelligent interpretation of conditions as he finds them. A nonopaque foreign body within the chest could easily escape undiagnosed if the diagnostic problem were not known. When a patient is referred for a diagnosis of bone pathology, the request should be accompanied by his age, duration of the probable lesion, and its main clinical manifestations. The roentgenologist is entitled to this information just as is any other consultant.

It is very important in gastrointestinal work that the diagnostic problems be stated. It is not sufficient to request an examination by barium meal. If esophageal pathology is suspected, it may be necessary to use a different type of opaque medium. Examination by means of barium enema, rather than barium meal, should be employed when most any type of pathology, except diverticula or appendiceal pathology, is suspected in the colon. May I add here that any obscure gastrointestinal case has not been thoroughly studied until both the gall bladder and gastrointestinal examinations have been made. The general tendency is to order only one of these examinations. The stomach, duodenum, gall bladder, and appendix are so intimately connected through the sympathetic nervous system that functional hyperacidity, ulcer, duodenitis, gall bladder, or appendiceal pathology may present symptoms which point to any one of the other structures named. In this type of case the diagnostic problem is to establish or rule out the presence of pathology in each of the above groups of organs, and the necessity of X-ray studies is obvious. Conduction of the gall bladder and gastrointestinal examinations simultaneously occasionally demonstrates the presence of adhesions between the gall bladder and duodenum,

when they would escape undiagnosed if the examinations were conducted separately. A recent development is the use of double contrast (barium plus air) media in colonic examinations. This method permits the study of the changes in the mucosa in colitis, the visualization of polyps, et cetera, which are usually undetected with the conventional opaque media. You must not be guilty of neglect in the management of those cases which present "indigestion" or gastric complaints after they have reached the cancer age. We all realize that the only hope of completely eradicating a malignant lesion lies in its early recognition. This can be accomplished only by X-ray examination.

Intravenous injection of the dye, with its attendant danger of severe reaction and occasional fatality, is no longer necessary in gall bladder examinations. Satisfactory results are obtained by the oral administration of the dye.

As a result of simplification of the procedure, the urinary tract should be subjected to examination, using opaque media, more frequently than in the past. The opaque medium can now be administered either intravenously or orally. In addition to the demonstration of pathology, these methods afford a good indication of renal function. The true size and contour of the renal pelvis and calices are also obtained, whereas in retrograde pyelography they are subject to various degrees of distention and distortion.

Perinephritic, psoas, and true subphrenic abscesses are best diagnosed by X-ray, but yet again your roentgenologist must know something of the clinical aspects of the case, or he likely will not carry out the type of examination which would detect these lesions. The proper examination will solve many cases which run an unexplained septic temperature or afternoon temperature. As an illustration, I might mention a man who had been sick for two years, presented an afternoon temperature, and had spent the last year in an institution for the treatment of tuberculosis, before a roentgenologist diagnosed subdiaphragmatic abscess.

It is not necessary to remind you that in arthritis X-ray is indicated to determine the location, type, and extent of the pathology. What is more important, a very thorough search should be made for foci of infection as soon as the earliest symptoms of arthritis occur. You, likewise, are familiar with the role which X-ray plays in locating these foci. In the latter connection, the studies of Snyder, Fineman and Traeger<sup>1</sup> are very enlightening. In a series of three hundred eighty-six cases of chronic arthritis, they found that ninety-three patients had sinusitis. Of these ninety-three cases of sinusitis, seventy-seven of them were silent or asymptomatic, and, of course, diagnosed only by X-ray. In this series, rhinologic treatment resulted almost invariably in marked clinical improvement of the arthritis.

Likewise, many pulmonary complications are secondary to sinus disease. Clerf<sup>2</sup> found in a series of 200 cases of bilateral bronchiectasis that eighty-four per cent of the cases had sinus disease. His observation is more important because he has determined that sinus disease secondary to bronchiectasis is rare.

There is not one among you who would credit himself with being able to satisfactorily diagnose pulmonary tuberculosis without the assistance of X-ray examinations. Samson and Brown of Trudeau Sanitarium have found that X-ray is positive in pulmonary tuberculosis in ninety-nine plus per cent of the cases. In the same report they state that the next most positive single diagnostic finding, that of bacilli in the sputum, is present in only 61.5 per cent of the cases. You should also know that it is possible to demonstrate the presence of foreign bodies within the air passages even when those objects do not cast a shadow. Many of these cases end fatally if an early diagnosis is not made, while many others spend years in tuberculous institutions before the diagnosis is made.

Patients commonly present themselves with varying degrees of pain, or so-called neuritis, in the upper arm, shoulder, or cervical area. X-ray studies reveal many of

these cases to be due to cervical arthritis, subacromial bursitis, or cervical ribs.

Pathological conditions in which X-ray cannot be employed advantageously, either in diagnosis or treatment, are very limited. It can practically be stated that there are no organs, cavities, or vessel channels within the body that cannot be studied roentgenographically. Many of them, of course, require the use of an opaque medium to make their examination possible.

The profession, generally, is not too well informed regarding the assistance which X-ray therapy can render it in the management of its patients. Of course, this is a relatively young branch of medical science, and it has not been so long since this type of treatment was given in a hit-or-miss manner. It is no longer sufficient to "expose a patient to X-ray" and hope for favorable results. We must follow a rational and planned outline of treatment. As some one has very aptly said, "The time has gone by for complacently pouring rays of which we know little into a body of which we know nothing." It is possible to determine and control the quality and penetration of the radiation. It is likewise possible to accurately measure the dose of radiation to any particular region of the tissues. I might also say that the competent radiologist has passed beyond the stage during which X-ray burns were common and greatly feared.

When X-ray and radium treatments are mentioned, many of you think primarily of the treatment of malignancy. You should realize that this is only one of many pathological conditions in which radiation therapy is definitely indicated. The problem of treating malignancy is gradually being solved just as it has been in the field of tuberculosis. Great progress has been made in the past few years in the management of malignancy with radiation therapy, and the latter treatment already supersedes in importance the surgical treatment of malignancy generally. Less and less surgery will be employed in the future, but the time probably will never come when a combination of irradiation and surgery will not



be indicated in some cases. Usually it is better to consult the radiologist and plan the entire course of treatment before subjecting a malignant lesion to any surgery whatever. There are some types of malignancy in which a combination of X-ray and radium treatment is indicated and necessary. Speaking generally, X-ray is of much greater value in this work than radium. Many persons, both within and without the medical profession, continue to think of radium the instant cancer is mentioned. In reality, the lethal effect of radium, as ordinarily employed upon malignant tissue, does not extend for a distance of more than one centimeter from its source or the location of the radium. If the lesion is sufficiently early to remain localized, it can be easily cured by any method of treatment you may care to use. The fact is that an extremely low percentage of the lesions is discovered this early. Roentgen therapy has the advantage of much greater penetration and even distribution throughout the tissues. When irradiation and surgical treatment are combined, preoperative is practically always much more valuable than postoperative irradiation. This is because preoperative irradiation greatly decreases the danger of dissemination to distant parts, as a result of surgery, and in many cases the lesion becomes more operable and the surgery much easier to perform. In many hopeless cases of malignancy the palliative benefit to be derived from X-ray treatment is extremely important. The rational management of most malignancies requires the Coutard or a modified Coutard plan of treatment. The latter consists of very heavy fractional or protracted treatment over a period of three weeks or more, the treatments usually being given daily. The result is a definite acute skin reaction, which clears up in from two to three weeks, and is then followed by desquamation and permanent tanning. It is necessary that the treatments be spread over an interval of at least three weeks in order that all of the malignant cells will be treated during the most vulnerable stage of their mitotic cycle. The old method of repeated occa-

sional heavy doses does not produce cures, and often results in chronic skin changes and X-ray burns.

Radiation is admitted to be the most important single therapeutic agent in the management of skin diseases, including, of course, skin malignancies, keratotic and precancerous lesions, plantar warts, keloids, et cetera.

Its role in the management of blood dyscrasias is well established. It is employed in the treatment of various types of leukemia, in Hodgkin's disease, to improve the blood picture in Banti's disease in preparation for splenectomy, and for the control of gastrointestinal hemorrhage, which sometimes follows splenectomy. It is possible to cure agranulocytic angina.

Benign uterine hemorrhage supplies an extremely important field for radiation therapy. This type of treatment is much easier on the patient, cheaper, and often leaves the patient in much better condition than would be the case if surgery were used, in addition to the fact that morbidity and mortality are eliminated. In a large percentage of metrorrhagias, menorrhagias, and fibroids, irradiation is the treatment of choice. Bleeding may be due to hyperplasia or hypoplasia of the endometrium or to asthenia. Occasionally a tuberculous condition of the endometrium is encountered. Likewise, irradiation may be indicated in some of the functional ovarian disturbances. Of course, a curettage should be employed when the diagnosis is doubtful, to rule out malignancy. Why should a patient be permitted to suffer a prolonged and difficult menopausal change, with possible permanent injury to her health, when the change can be completed easily with irradiation? You all appreciate the fact that either temporary or permanent sterilization or amenorrhea can be produced at will. It is worth while to know that bleeding can be very promptly controlled by the administration of a small dose of X-ray to the spleen. In some cases this is almost a life-saving procedure.

The results obtained in the various types of goiter by roentgen therapy parallel the

results obtained in the corresponding types with surgical treatment. Morbidity and mortality are eliminated. A smaller percentage of hypothyroidism results than with surgical treatment. All foci of infection should be eradicated before the patient is subjected to treatment. A small percentage of the patients fail to respond to irradiation, just as others do to surgical treatment.

Irradiation is often the treatment of choice in acute inflammatory conditions, while in other cases it may prove a valuable adjunct to other forms of treatment. In the early stages of the infection or inflammation it may abort the process entirely, while in the later stages it is more apt to hasten recovery by speeding up liquefaction and drainage. Doctor May<sup>3</sup> reported a miscellaneous group of 235 acute inflammatory conditions treated by irradiation as follows: furuncle of the sweat glands, furuncle and carbuncle, lymphadenitis, sinusitis, arthritis rheumatica, gonorrheal arthritis, phlegmon, pneumonia, paronychia, orchitis, parotitis, nephritis, mastitis, osteomyelitis, tonsillitis, erysipelas, inflammation of adnexa, otitis media, and pleural empyema. Of this group of 235 cases, 81.3 per cent received marked improvement from irradiation, while 18.7 per cent received doubtful or negative results. Roentgen treatment is important in the management of essential hypertension. Hutton<sup>4</sup> reports good results in ninety-six out of 123 cases, both as to their subjective complaints and reduction in blood pressure. Of the remaining twenty-seven cases, seven of them could not be traced, and twenty were unimproved. Some of the twenty cases which were unimproved received insufficient treatment. The treatment was administered over the pituitary and adrenal glands on the supposition that dysfunction of these glands is responsible for the hypertension. Many cases of diabetes mellitus can be controlled by this same plan of treatment.

Roentgen therapy could justify its existence if it possessed nothing more than its analgesic properties. This property of

radiation is not thoroughly understood. Some workers feel that it possesses a true specific analgesic action on the nerve cells themselves, while others feel that the relief of pain is not merely symptomatic relief. They contend that only those pains which have arisen under pathological conditions can be relieved, that the pain is relieved only from the influence which irradiation exerts on the pain-producing pathology. Regardless of the method of action, we know that satisfactory relief of pain may be obtained in intercostal neuralgia, trigeminal neuralgia, chronic mastitis, paresthesias of the tongue, herpes zoster, neuritis, arthritis, furunculosis and carbuncle, inoperable malignancy, metastatic bone malignancy, tuberculous peritonitis, angina pectoris, pelvic inflammations, inflammatory bands and adhesions involving other regions of the abdomen, et cetera.

At present, I am very much interested and enthused concerning the treatment of whooping cough. I began treating these cases less than one year ago. It is truly remarkable how very severe cases of whooping cough can be terminated in an average of about one week's time. Good results are almost uniformly obtained. I might state that several of the cases which were treated with X-ray have previously received repeated administrations of pertussis serum, both before and after developing the disease, with no apparent result.

Obviously, there are many other pathological conditions that have not been mentioned which are favorably influenced by roentgen therapy. I have merely tried to call to your attention some of the various conditions in which you may consider the advisability of X-ray treatment, rather than discussing those conditions in detail. I do not wish you to believe that our results in these various conditions are one hundred per cent satisfactory. My chief desire is that this discussion will promote more frequent consultation with your radiologist and a closer cooperation between you on the individual patient which you may refer to him.



## REFERENCES

- 1 and 2. "Yearbook of Eye, Ear, Nose, and Throat," 1934.
3. Ernst A. May, M.D.: "Roentgen Therapy in Acute Inflammatory Conditions," *Radiology*, April, 1930, Vol. XIV, Page 411.
4. J. H. Hutton, M.D.: "Radiotherapeutic Treatment of Hypertension and Diabetes," *Radiology*, March, 1935, Vol. XXIV, Page 330.

## DISCUSSION

DR. FRANKLIN B. BOGART (Chattanooga): In diagnostic radiology I feel it should be emphasized that the roentgen examination supplements the other clinical examinations and in no way replaces them. It goes without saying that the closest cooperation between the physician who is in charge of the case and the radiologist is necessary if the patient and the referring physician are to receive the greatest possible benefit from the examination.

If we may take the chest as an example, I prefer first to examine the films without knowing what the history and physical findings are, then to consult with the clinician, and after learning the essential clinical features of the case to arrive at the diagnosis in consultation. Again using the chest as an example, there are many cases that can be diagnosed from the films alone, but there are others that can only be correctly diagnosed after such a correlation of the various findings.

There are certainly many cases in which a brief consultation between the referring physician and the radiologists, before the X-ray examinations are made, will eliminate unnecessary examinations. The general man who is in the habit of having his cases properly worked up will have fewer cases in which such a consultation is necessary than some other man who is not so familiar with what can be expected from an X-ray examination. X-ray examinations that are properly made are necessarily expensive, and it is imperative in times like the present to make as few special examinations as possible. I have always felt that some individuals and clinics make too many so-called routine laboratory and X-ray examinations. If the case is well studied clinically, and the X-ray examinations based on such a study, the results will be gratifying. On the other hand, it should be emphasized that it is in the early lesion, the doubtful lesion, the suspicious lesion, that an X-ray examination will often make a definite diagnosis and either save the patient's life or greatly shorten the duration of the disease. Pulmonary tuberculosis and carcinoma are notable examples.

In cases requiring radiation therapy the closest cooperation is also necessary between the clinician and the radiologists. In malignancies some are best treated by surgery alone, others by radiation alone, but the vast majority require both surgery and radiation if the best possible results are to be

obtained. In breast lesions, as an example, certain types of massive carcinoma are best treated by radiation alone, because it gives a longer period of life with more comfort to the patient than surgery can offer. Most cases of frank carcinoma of the breast should receive preoperative radiation, a radical amputation, and then postoperative radiation. On the other hand, no radiologists would advocate preoperative radiation of all doubtful breast lesions. These should be operated at once, diagnosis made by frozen section, and if the tumor is malignant a radical operation done and postoperative radiation used. Dr. Reaves enumerated some of the many nonmalignant conditions in which radiation therapy is of value. Metrorrhagia and many chronic or subacute inflammatory lesions are notable examples of these lesions.

As a radiologist I wish to state what seems to me a fair evaluation of the present tendency for the general man to purchase an X-ray machine and do his own X-ray work. If a general practitioner, an industrial surgeon, an eye, ear, nose, and throat man, etc., wishes to so equip himself, and is willing to qualify himself so that he can do such work properly, no one should object. But when such a man attempts to do such examinations as chest, gall bladder, gastrointestinal, and other special examinations with equipment that is inadequate, and attempts to interpret screen and film findings that he is not qualified to interpret, he is doing the same type of poor surgery that a general practitioner would be doing should he attempt to remove a brain tumor.

In closing, I wish to emphasize that there will be fewer useless X-ray examinations and more necessary examinations when there are more consultations and better cooperation between the referring clinician and the radiologist.

DR. W. H. WITT (Nashville): Mr. Chairman, whenever the practicing physician, the man who has the case in charge, takes charge of an individual who is ill, he owes it to himself and to his patient by careful history and physical examination to come as near to a diagnosis as he possibly can.

The multitude of aids that have developed in the last fifty years, many of them in the last ten or fifteen years, have led me to think from some of the observations that I have made that clinicians are becoming more careless on the question of history and physical examination than they used to be.

When a patient comes with some symptoms of disturbance in the digestive tract, I really believe that in nine cases out of ten, or maybe more, a very probable diagnosis can be made, and often is, from the history alone. The same thing is true with reference to diseases of the chest. The X-ray, tests of the sputum and blood, and other laboratory methods should in most cases, and I believe in most cases can, become confirmatory of the

opinion that the doctor in charge has already expressed to himself. So in spite of all these aids that help us out in emergencies, do not let us become lazy and careless in taking histories and making physical examinations, and, when we send the person to the X-ray man, let us put down on a little piece of paper what we think is wrong, and not just send him up there for a chest or abdominal examination because we are too lazy or too careless or possibly too ignorant to formulate a probable diagnosis by our own methods.

DR. G. M. ROBERTS (Chattanooga): I will not attempt to discuss this paper in detail, but there are some points that should be emphasized. Dr. Reaves has read a paper and taken an attitude as to intravenous urography that would be expected of a radiologist, but a urologist has always contended that any condition that demands a roentgenographic examination of the kidney also demands a cystoscopic examination. So do not depend too much on what you find in your intravenous urography.

Negative results can be considered not at all; only positive results can be considered in most cases.

DR. HUGH REAVES (closing): I am mighty glad that Dr. Bogart further emphasized the theme of cooperation. That was the main point of my paper.

In connection with his remarks relative to the chest I would like to mention one thing. In spite of a supposed high degree of accuracy in the diagnosis of pulmonary tuberculosis by X-ray, we should remember that there is a small percentage of cases with border-line findings, and no one is able to say definitely whether the patient does or does not have tuberculosis. I do not think you are being fair to your patient if you do not have that examination repeated after an interval of about ninety days by getting films for comparison to see if there is any change that can establish a definite diagnosis. That is something which I find the referring man practically never does: he does not return the cases; he dismisses them.

I expected the point that Dr. Robertson raised in regard to intravenous pyelography. I believe in my paper I said it was no longer necessary to do retrograde pyelography. Of course that is not strictly true. There are still many cases in which it is advisable and should be done, and in many cases it should be done along with the intravenous or oral method. It has been shown very definitely that quite often errors of diagnosis are made by

the retrograde method due to overdistention and distortion of the renal pelvis and calices. The renal pelvis and ureters have what we might consider more or less the same thing as peristaltic activity of the stomach and intestines, and by getting serial films following the intravenous method we get those changes in contour, and we do not get distortion. Of course, the most important field for the intravenous method is in children.

I am mighty glad Dr. Witt emphasized the fact that X-ray should not be considered the whole diagnosis or the whole picture; it is only part of the picture, it is only an adjunct to the other methods of diagnosis. He has exactly the right idea when he says to give a provisional diagnosis to the roentgenologist.

One doctor asked me last night about the treatment of bronchial asthma. He said he would be very glad if we could find something we could do for that. Considerable work has been done on the treatment of asthma with X-ray. We have to admit that it is still in the experimental stage. We do not know a great deal about it yet, but a great many patients do receive very marked improvement from X-ray treatment after all other methods of treatment have failed—not all of them, but a certain per cent. I think we should consider that improvement as a temporary rather than as a permanent result.

There are many other things I did not have time to mention. Therapeutic abortion is a mighty important subject, to my mind. Sterilization, of course, particularly in younger women, can be carried out by treatment of the pituitary rather than by treating the ovaries.

In closing, I would like to suggest that the assistance received from the roentgenologist as a consultant is often more valuable if a patient is referred to his private office rather than the hospital. That goes back to the thought brought out in the paper—that he sees the case, plans the examination, and acts really as a consultant, whereas in the hospital he may not see the case at all.

I would like to stress here that it is well to be skeptical of the man doing X-ray therapy who suggests that he treat your case of malignancy with a very heavy dose, then have the patient return in ten days or two weeks and repeat the dose, and possibly return two or three weeks later for a third dose. He is not going to get results on that malignancy. Improvement is going to be very temporary, and if he treats those cases many times he will get an X-ray burn.



## DISTURBANCES OF THE LABYRINTH CAUSING VERTIGO AND NAUSEA\*

R. G. REAVES, M.D., Knoxville

I AM PRESENTING this subject from somewhat of a different angle from which it is usually discussed. I shall take up anatomy, blood, and nerve supply and physiology of the labyrinth, especially of the semicircular canals and utricle.

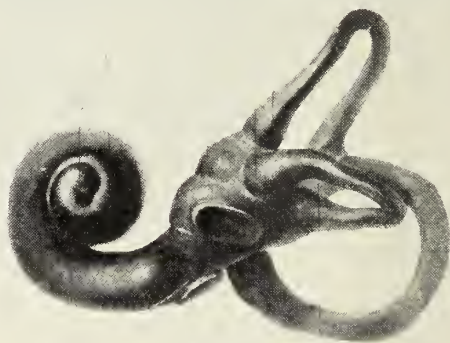
The osseous labyrinth consists of the vestibule, the central chamber, the semicircular canals and the cochlea. The osseous capsule is made up of three layers: a thin inner layer of ivory-like density formed from the endosteum lining the capsule and quite free from blood vessels; an outer layer formed from the periosteum from the middle and posterior fossae of the skull; and the inner wall of the middle ear. This layer is penetrated with blood vessels from the surrounding tissues. A third or middle layer is derived from the embryonal cartilage of the capsule. This layer retains throughout life nests of embryonal cartilage.<sup>1</sup>

The osseous capsule is perforated by several openings. The oval and round windows opening into the tympanic cavity; the aqueductus vestibuli and aqueductus cochleae both opening into the posterior fossa; and the fundus for the transmission of the branches of the eighth nerve and the branches of the labyrinthine artery. Along with the aqueductus cochleae is the canalis contunii for the passage of the main vein.<sup>1</sup>

From this brief description you can readily see how well the osseous capsule is constructed to protect the membranous capsule, there being practically no chance for infection to pass from middle ear to the internal ear except by bony necrosis or through one of the windows. There are no vascular connections between the middle and internal ear.

The membranous labyrinth is a very deli-

cate structure suspended in perilymph within the osseous capsule. It consists of the three canals which open into the utricle; the ductus endolymphaticus connecting the utricle and saccule by its Y; the saccule and the ductus cochlearis which are connected by the canal reuniens. The outer wall of turns of the ductus cochlearis is in direct contact with the bone. The canals and utricle are sense organs of equilibrium, the ductus cochlearis and saccule are sense organs of hearing. The saccule probably picks up tones of lower vibrations. The ductus endolymphaticus ends in a bulbous ending lying outside of the dura on posterior surface of the petrous bone. Its functions may be those of contraction and expansion to regulate the pressure within the capsule.



Wood's metal cast of the osseous cavities of the human labyrinth, left ear: a, cupola cochleae; b, middle coil; c, fenestra cochleae; d, fenestra vestibuli; e, ampulla ossea posterior; f, crus commune; g, ampulla ossea superior; h, ampulla ossea lateralis; i, recessus ellipticus; j, recessus sphericus; k, basal coil.

The blood supply is from the labyrinthine artery, a branch of the basilar artery. Each canal receives two arteries, one entering at either end and anastomosing with each other. The main vein passes through the

\*Read before the Tennessee Academy of Ophthalmology and Otolaryngology, Nashville, April 8, 1935.

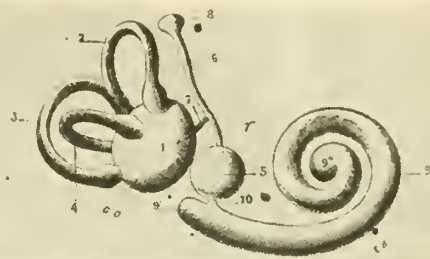
canalis contunii, a channel by the side of the aqueductus cochleae, to the posterior fossa emptying into the inferior petrosal or the sigmoid sinus. In fact, Dr. Geo. E. Shambaugh does not describe any other vein. He says that some have reported a vein passing through the internal auditory canal, but he had never been able to demonstrate the same.<sup>1</sup>

*Nerve supply*—I am unable to find anything referring to any other nerve supply than the nerves of the special senses. We know, however, that wherever the blood vessels go the autonomic nerve vessels follow. It is this autonomic nerve supply that will occupy much of our attention later on.<sup>2</sup>

The endolymph has no connection with the cerebrospinal fluid, the membranous capsule being a closed chamber. The perilymph, however, connects with the subarachnoid space through the aqueductus cochleae.

*Semicircular canals*—In each membranous semicircular canal, as it leaves the outer side of the utricle, there is a bulbous enlargement which contains the crista ampullaris, the dynamostatic sense organ of equilibrium. It is placed transversely to the lumen so as to receive the full impact of the movement of the endolymph. This ridge-like eminence is made up of connective tissue cells and nerve fibers and has a rich supply of capillary vessels. On the summit of the crista and extending well down on either side is a highly specialized layer of neuroepithelium over which is placed the cupola, a structure analogous to the tectorial membrane. The hairs from the hair cells pass through the openings of the lamina reticularis, and crossing a narrow open space become attached to the cupola. The maximum stimulation of the crista is obtained from movement of the endolymph toward the ampullae in the horizontal canal and from the ampullae in the superior and posterior canals. However the canals are stimulated in pairs in any movement of the head so that one canal on one side of the head receives the maximum and another on the other side the minimum stimuli. The two horizontals act in pairs. The superior on one side acts

with the posterior on the other side. This delicate mechanism detects any rotary movement of the head.



Membranous Labyrinth of the Right Side, Seen from the External Surface.

1, utricle; 2, superior semicircular canal; 3, posterior semicircular canal; 4, external semicircular canal; 5, saccule; 6, endolymphatic canal, with 7 and 7', its two branches, and 8, its vestibular cul-de-sac; 9, cochlear canal, with 9', its vestibular and 9'', its terminal cul-de-sac; 10, canalis reuniens of Hensen. (*American Textbook of Physiology.*)

*Utricle*—Situated on the floor and anterior end of the recess of the utricle is the macula utriculi.<sup>2</sup> The macula utriculi, like the organ of corti and the crista ampullaris, has a unit of peculiar hair-bearing cells which is superimposed by a structure of epithelial origin, the otolith membrane, to which the hairs are attached. The macula consists of two layers of cells, one of neuroepithelium, and the other of connective tissue cells. It has a rich vesicular network of capillaries. The macula utriculi is a sense organ of statodynamic equilibrium informing us regarding the position of our heads when at rest or when the entire body is engaged in progressive movements in one direction or another. It is conceived that the otoliths evoke stimulation by means of their weight resting upon neighboring hair-like processes. At any time our head is tilted, their line of gravity is shifted so that different hairs are mechanically acted upon with varying forces.

In a letter from Dr. W. J. McNally he says: "With reference to utricular behavior, when a frog, with only two utricles intact, is placed on a turntable away from the center of rotation, the animal makes a very definite response to rotation. It is due to the fact that the utricles are being stimu-



lated by centrifugal force. This same frog is similarly affected by sudden forward or backward movements. In the latter instance, the stimulus being linear acceleration." Dr. McNally further states, in summarizing his experiments demonstrating the interaction of the semicircular canals and the utricles, that "these experiments suggest that in the frog the labyrinth is intimately concerned with the control of the muscle tone, posture, and movement, the semicircular canals and the utricles all being essential to normal progressive movement and to normal resting posture.

"The vertical canals and utricles are both stimulated by any sudden tilting movement, and, their reactions being oppositely directed, the one exerts a modifying and controlling influence upon the other.

"The tendency of the utricles to elicit a reaction opposed to true compensation is just sufficient to modify that of the canals to overcompensate with the result that the reaction in the normal frog is perfectly timed and just properly graded to overcome the initiating stimulus so that the reaction is never excessive, and yet the head never deviates from the normal level during movement.

"The working of the labyrinth is, to a certain degree, not unlike the machinery on a modern liner: the utricles and the canals serve to overcome any tendency for the ship to roll or pitch, while the horizontal canals are the rudder which controls the direction of the ship."

The statolithic receptors in the macula utriculi supplement the function of the receptors in the ampullae of the semicircular canals which mediate the sensation of rotary motion and are, therefore, primarily concerned with the production of dynamic sense. In both cases the sensations give rise to reflexes which are essential for the maintenance of equilibrium. In the last analysis, however, the static and dynamic senses are compounded in their nature, because they depend not only upon the sensations derived from the corresponding sensory structures of the labyrinths, but also upon those obtained from the retinae, from

the cutaneous receptors and from the deep receptors situated in the muscles, joints, and tendons.<sup>3</sup>

We have described the semicircular canals and the utricles, and have shown how movements of the head will stimulate these organs. We will now direct our attention as to how these organs may be stimulated or become more hypersensitive from internal bodily conditions.

First of all, we should make a careful study of the autonomic nervous system, which is composed of the sympathetic and the parasympathetic nerves. The parasympathetic includes those ganglia about the cranial and sacral nerves, and the sympathetic includes the cervical thoracic and lumbar ganglia which are in close relation to the spinal nerves. Their actions are



Cross section of semicircular canal and ampulla showing relations of membranous canal and ampulla to the bony canal, crista ampullaris, and cupola; pig.

antagonistic, as illustrated by stimulating the parasympathetic causing constriction of the iris, while stimulation of the sympathetic (superior cervical ganglion) causes dilatation of the iris.<sup>3</sup> We know that the vasoconstrictor center is situated in the medulla. It is also very probable that the vasodilator center is in the medulla. Nerve fibers regulating the caliber of blood vessels may be contained in almost any nerve, together with fibers possessing other functions. The nerve of Wrisberg lies in the internal auditory canal between the eighth

and seventh nerves and apparently joins the seventh, and at the geniculate ganglion gives off branches to the large and small superficial petrosal nerves and to the external superficial petrosal nerve. The superficial petrosal nerve connects with the tympanic plexes. The geniculate ganglion also receives a branch from the vestibular division of the eighth nerve. The geniculate ganglion receives fibers from the carotid plexes through the large superficial petrosal nerve.

In our study of anatomy and physiology, we find we have a delicate sense organ with ampullae of the canals and the macula of the utricle richly supplied with blood capillaries. We also find one of the nerves and ganglia of the autonomic nerve system in close proximity to labyrinthine artery. In health, and without abnormal stimuli, these delicate sense organs and autonomic nervous system function perfectly.

Stimulation of the dynamostatic labyrinth:

1. Normal:

Sense of equilibrium at rest and in motion.

2. Disturbed or abnormal stimulation:

Toxic, drugs, bacterial or metabolic. Vasomotor (constriction and dilatation).

Cardiovascular.

Seasickness and car sickness.

Middle-ear disturbances.

3. Pathology of the labyrinth:

Otosclerosis.

Arteriosclerosis.

Hemorrhage.

Embolism.

Thrombosis.

Suppurative labyrinthitis.

Serous labyrinthitis.

Paralabyrinthitis.

Syphilis.

Normal stimuli have already been referred to.

Disturbed or abnormal stimuli do not produce turnable vertigo, that is, things move in any one direction. Patient is dizzy, he feels somewhat uncertain as to his position in space, and may have nausea. Some-

thing has gone wrong with his sense organ of equilibrium. This may be brought about by some toxin to which these organs are



Crista ampullaris, horizontal canal showing the collar or ridge below the area occupied by neuroepithelium and the more extensive area of hair cells on one side of crista.

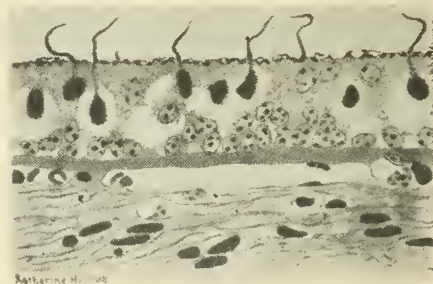
especially sensitive—for instance, quinine, alcohol, salicylates, etc.—or from focus of infection. It may be that the patient has a gastric or duodenal ulcer, gall bladder infection, or anything that causes pain and disturbs the vasomotor mechanism. Vasomotor constrictions suddenly cutting down the blood supply to these delicate sense organs in a rigid bony capsule would alter the normal stimulation being sent to the cerebral center. Likewise a vasodilatation would cause a disturbance. In case of vasoconstriction, you would have a decreased labyrinthine pressure and vice versa in case of vasodilatation, increased blood supply, and increased labyrinthine pressure. Again, the more excitable the central nervous system the more likely the normal as well as abnormal stimuli to be exaggerated when registered on the conscious centers. This was shown by stimulating a pigeon's labyrinth after he had been kept perfectly quiet for some time and after he had been kept excitable. Neurasthenics are prone to complain of dizziness. They have an unstable vasomotor center and an excitable central nervous system. Seasickness and car sickness are produced by prolonged stimulation



of the ampullae and maculae. I have no doubt, if we could see these sense end organs, that we would find them hyperemic from overstimulation in the same manner as we find the retina and ciliary body from the overstimulation of light. Unfortunately, we will never have the opportunity to see this. In seasickness and car sickness, nausea and vomiting are more marked than vertigo. From certain observations which I have made I have asked myself the question, which of these organs is the more stimulated in these motions? The first trip I made across the ocean, when I began to feel a little sick, I went out on deck, stood up, and tried to keep myself perpendicular with the earth, hoping to cut down the movement of the endolymph of the semicircular canals. I did not get very sick. I suspect that my action protected the utricles more than the canals. Has it ever occurred to you that the driver of a car rarely ever gets sick? The only time I ever got sick in a car was when I was not driving. We were going uphill and down and around curves at a rather fast speed. I asked for the wheel and was soon feeling all right. What happened? I kept my eyes on the road, when I came to a right curve I inclined my head to the right and vice versa on a left curve. This is what the driver does unconsciously, because he must follow the curves while the other occupants of the car lazily permit their heads to swing with the car. It is my theory that when you set your head against the curve the otoliths

retain their normal relations with the macula, whereas, when this is not done the momentum of force causes the otoliths to pull the hair cells first to one side and then the other. This leads to overstimulation of the maculae. By nature of their arrangements it is very doubtful that much movement of the endolymph in the canals takes place in car movement. This is my theory, and I hope that it may be proven or disproven.

*Middle-ear disturbances* — One of the most common causes of vertigo (nonturnable), or dizziness, is blocking of the eustachian tube, and this is usually seen in patients who are under par. I have never



Detail of macula. Note the deeply staining nuclei of the hair cells, the hairs protruding from the reticular membrane.

seen a healthy young individual with a blocked eustachian tube complaining of dizziness. They are usually patients up toward middle age or past. This is probably due to disturbed pressure on the ossicular chain and the round window. Establishing patency of the tube relieves the patient. Acute inflammation of the middle ear may occasionally cause hypermia of the labyrinth and cause dizziness. Complete blocking with cerumen may cause dizziness.

*Pathology of the labyrinth*—Arteriosclerosis is a disease of the blood vessel that may alter the blood supply, may cause the vessel to rupture, causing hemorrhage, or changes in the intima may cause thrombosis. There may be hemorrhage in the labyrinth producing real turnable vertigo, nystagmus, nausea, tinnitus, and deafness. Hemorrhage may cause complete or partial destruction of the function of the labyrinth. Embolism or thrombosis of the labyrinthine artery or some of its branches may cause turnable vertigo.



Details of crista of ampullaris showing hairs of hair cells penetrating cupola; human ear.

Serous labyrinthitis secondary to acute otitis media, or acute infectious diseases such as mumps, scarlet fever, measles, influenza, et cetera. There may be complete or partial destruction of function and there may be turnable vertigo, nystagmus, nausea, tinnitus, and deafness.

Suppurative labyrinthitis secondary to middle-ear infection—condition rare. Sudden deafness, turnable vertigo nystagmus, and nausea. Usually followed by meningitis and death. If patient lives, symptoms subside in about a week's time, the other labyrinth compensating for the lost one.

Paralabyrinthitis complicates chronic mastoiditis with cholesteatoma which has produced a fistula usually in the horizontal canal by necrosis. The endolymph itself is not infected, but there is pressure on the canal and congestion brought about by irritation. This will produce attacks of turnable vertigo, nystagmus, and nausea.

Syphilis—we must always look out for it.

Ocular vertigo, of course, does not arise from any stimulation or irritation of the sense organs of equilibrium in the labyrinths. There may be, however, a lack of coordination of senses or stimuli received from the eyes and the labyrinths that give the patient a sense of uncertainty. This is found in muscular imbalance where there is a tendency to diplopia and in some cases of

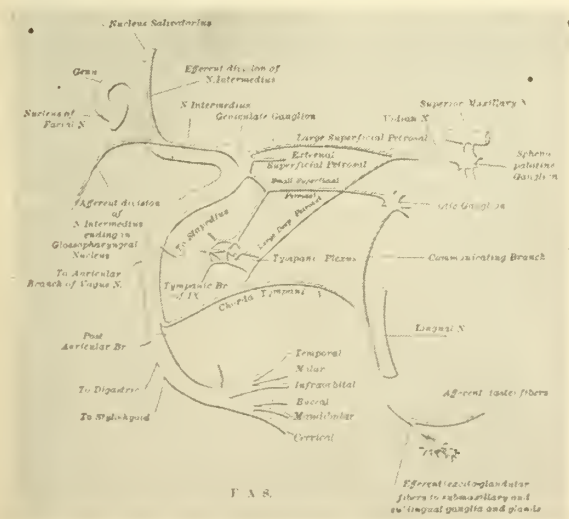
astigmatism, especially after a patient puts on his first pair of glasses. The eye aids in our sense of orientation, and if the sensations from the two eyes are dissimilar then there is confusion in the brain centers. Again, if the sensations from the eyes are conflicting with those of the labyrinth there arises a confusion. Just where this coordination takes place we do not know. It is probably in the nuclei of the midbrain.

If from this we get a complete picture of the anatomy and physiology of the sense organs of equilibrium, we should be better able to form a mental picture from our histories and examinations as to whether or not we have pathology in the labyrinth, vasomotor disturbance, abnormal stimuli, excitable central nervous system, or toxic labyrinthitis. Treatment depends on the cause of the disturbance of equilibrium. Abnormal stimuli should be removed, by removing cerumen, establishing patency of the eustachian tube, removing the toxin—drug, metabolic, or bacterial. Improving the general health establishes a balance in the autonic nervous system. When pathology is present, the condition causing the pathology must be given attention—arteriosclerosis, hypertension, acute or chronic infection of middle ear or mastoid, and syphilis. Some drugs may cause pathology of the labyrinth. Time will not permit me to go into further detail.

#### BIBLIOGRAPHY

1. Special Cytology, Vol. II.
2. Gray's Anatomy.
3. Burton: "Opitz Physiology."
4. W. J. McNally and John Tait: "Function of the Utricular Maculae of the Frog." *Acta Otolaryngologica*, Vol. XX, fasc. 1-2. Stockholm.
5. Wm. J. McNally: "Experiments Demonstrating the Interaction of the Semicircular Canals and Utricles." *Transactions of the American Academy of Ophthalmology and Otolaryngology*, 1933.
6. W. J. McNally and John Tait: "Disabilities Consequent upon Ablation of Particular Receptors in the Labyrinth of Frogs." *Transactions of the American Otological Society, Inc.*
7. W. J. McNally: "Experiments on the Utricle." *Laryngoscope*, January, 1934.

Pictures No. three, four, five, and six are taken from Dr. Shambough's works and *Special Cytology*, Vol. 2.



Plan of the facial and intermediate nerves and their communication with other nerves.



## THE CLINICAL AND REHABILITATION ASPECTS OF EMPHYSEMA\*

KENNON DUNHAM, M.D., Cincinnati, Ohio

I N TRAVELING over the United States I find a great deal of justified sectional pride. I come down here to Tennessee and I learn for the first time that you have one of the oldest medical societies in this country. I go to New England and I find there pride in their Boston beans and the Massachusetts General. I also find just as much pride in California. But my one feeling is: Thank God, this is my country, whether it is Tennessee, the Gulf States, California, or Ohio; this is my country, and I am proud of every part of it.

There was a symposium or a series of talks a little while ago with regard to diverticulitis and diverticulosis. I wanted to discuss that paper, but I saved my discussion of that paper until it was my time to talk because I have unlimited time. You can leave me, but I still have unlimited time. As I listened to that, my personal experience stressed the fact that many of these cases developed after forty years, but evidence of diverticula develops many times before forty years. Many patients are sent to the Mayo Foundation, Johns Hopkins, the Massachusetts General, to diagnosticians in various parts of the country, but it was brought out in your discussion very clearly that, although the evidence of diverticulosis was there, it was not noted until after diverticulitis developed.

The point I want to impress is this: the value of the family doctor, the value of the person who is taking care of that particular family. If a member of that family has gone to Europe and had a diagnosis, or to the Massachusetts General, or to Johns Hopkins, or to the Mayo Clinic, to Dr. Dunham, or anybody else, somebody should have accumulated the examinations and findings for that patient, and they should be at the disposal of the physician, who may be able to take over that patient at some subsequent

time. I am thoroughly convinced that the examinations of the patient should be recorded by an able physician, and that record should be kept, and subsequent examinations added.

I can think of nothing more important to impress upon you, of all the things that I have thought of to say to you, than just that fact. Let us get rid of the idea that the consultant or the big physician can talk to the patient and impress him; let him put his findings in writing, so that the next physician will be able to understand exactly what he found and thought, as well as the facts he found and recorded.

In passing from one state society to another, as I have done in coming to the Tennessee society, it is a great pleasure to me to find simple, able, conscientious work being done; whether it is in Tennessee, Ohio, West Virginia, Iowa, Missouri, or Illinois, it makes no difference. The great thought is that the doctors of this country are striving with all their might to meet the conditions which produce sickness, and are trying to solve its problems. I congratulate you gentlemen upon the simplicity of your program, the clarity of the remarks and discussions, and I am proud to find the Tennessee Medical Society is representative of my profession and of my country.

In coming to you I have brought a special message because of special work, and that message is the rehabilitation and clinical aspects of patients who have suffered from emphysema. The picture in my mind is that of tuberculosis, because I am in charge of a very large tuberculosis sanatorium.

As a background before we start to talk about emphysema and tuberculosis, let me say that long before the great war we found we did not know much about how to rehabilitate tuberculosis patients—that our best work was to put cases that had recovered from tuberculosis to work in our sanatorium—but we found that they did not always do well, and so for the last

\*Read before the Tennessee State Medical Association, Nashville, April 9, 10, 11, 1935.

fifteen or twenty years we have been studying these cases which have become arrested tuberculosis, and we have selfishly, let us say, been forced to see that they did not break down. It is that study that I am bringing to you this afternoon. From a generous standpoint, we wanted to give patients who had recovered a job; from a selfish standpoint we wanted to keep those people holding their jobs. Otherwise the county commissioners and the people who were furnishing us our money would immediately get busy and say, "Well, you just do not deliver the goods, because these people are not an economic asset, they are an economic loss."

We came very early to the situation of finding patients discharged, not necessarily working on our staff, but discharged as arrested tuberculosis, and in a year or two years they would return to the sanatorium as reactivated. They would have fever, they would have rales over the chest generally, they would have a rapid pulse, they would have cough, they would have expectoration. What they did not have was positive sputum, and, when we re-X-rayed those patients that were sent back to us, we found that they did not have new abnormal densities seen on the X-ray films. That taught us to stop, look, and listen. The explanation was very simple. There was no new evidence of tuberculosis involvement of that lung. My goodness! they certainly were sick, they certainly required attention, but two, three, four weeks in bed and those patients would be returned to health. When I say returned to health, I mean moderately; that is they were able to get up and go about their business in perfectly good condition.

What we wanted to know was what was the matter, and a careful study showed us that the trouble there was emphysema, to which we had not paid sufficient attention. We studied emphysema. We found that emphysema was a loss of elastic tissue fiber. That does not show on the X-ray films, but it was a loss of elastic tissue fiber, a loss of ability of the lung to carry on its function. When we got that far, we started out to find what we could do about it.

We were very much involved because we had patients working. It was not a question of patients on the outside; it was a question of patients who had gone to work in our institution, and we decided that we had to make a careful, systematic study, and that has been going on since before the great war.

We soon found that the emphysema was detectable, that emphysema was not limited to tuberculosis, but that emphysema complicated every case of asthma, that many sinus infections would produce emphysema, that almost any chronic lung condition, bronchiectasis and chronic bronchitis, was associated with emphysema; we found constantly that the care of those cases was of the utmost importance to every general practitioner, because such cases must be coming to your office as well as to mine.

Just to digress a minute, leaving tuberculosis and rehabilitation (and I am coming back to both of them), many patients came to my office, the husband being ready to get a divorce because he felt his wife to be a pure neurasthenic, who wanted to go from one doctor to another. The point soon was made that some of those cases were the result of emphysema—lack of capacity of the lung to exercise its fundamental function expressed by the elastic tissue fibers. These patients were considered neurasthenic, they were considered as desiring to consult a doctor to hunt sympathy, and it was the easiest thing in the world to call them all sorts of names, but we found that they came under the same physical conditions as many of the tuberculosis patients. We found that by regulating their rest, determining their threshold of exhaustion, pulmonary exhaustion, those women and men who were considered neurasthenic could be made self-respecting individuals and useful to their families, and that is the story that I am bringing to you this afternoon.

Now what does it mean. Let us go back to tuberculosis just a moment. We have progressed from the time which many of you remember, as I do, when tuberculosis was incurable, and have arrived where tuberculosis is one of our curable diseases, not by medicine and drugs, but by rest and



care, by means of surgery, that is pneumothorax, thoracoplasty, section of the phrenic. Control of these therapeutic measures has added materially to our ability to get tuberculosis patients well.

But after we have gotten them well, after the tuberculosis is arrested, and there is no more tubercle bacilli in the sputum, they are discharged, and too many of them break down. What can we do to maintain them upon an economic status? How can we keep them from breaking down? Only one thing stares us in the face—how to determine the amount of emphysema, what hours of work can the patient do, how many hours can that patient be out of bed without breaking down?

Now emphysema is a condition which proceeds to dilate the air cells and destroy the elastic tissue fibers in the lung, and when the air cells are dilated and the elastic tissue fibers are gone, it closes the blood vessels and capillaries and thus reduces the vitality of the lung affected. How can we protect such a patient from further breaking down of the elastic tissue fibers? That is the problem which I am bringing to you this afternoon.

We have found no specific laboratory test. We have been thrown back again upon the necessity of a physician's acumen and his understanding. In other words, it is absolutely necessary to practice medicine and not depend upon the laboratory for the answer. We find this extremely important to us in the hospital; because, if we do not protect these patients against that breakdown, they go back to the hospital, and the county commissioners—i.e., the men who give us our money—come right back at us with a club and say, "You are wasting our money," whereas, if we can keep those patients working, they say, "You are saving our money."

Now we have in reality been saving the county commissioners money, and it has been done by physical examination, medical consideration, and medical acumen, which I am trying to bring to you this afternoon.

Let us think just of palpation. Putting your hands on the side of the patient's chest,

it is easy to find that the ribs and the lateral walls are wider than usual with these cases of emphysema. We ask them to exhale, and then, continuing to feel carefully by palpation, we ask them to take a deep breath, and we find the ribs going up and not going out, as is normal; we find the ribs spreading farther apart than we expect. That is your palpation. Maybe one side will expand more than the other. This can also be seen sometimes on inspection, although inspection is not so delicate. The barrel chest is the exception.

In percussion we find that the diaphragm does not move on forced expiration and forced inspiration as far as is normal; that is, taking the midaxillary line, you will find that the diaphragm will move three or four fingers' breadth. Many of you may think that that is normal, but, if you will examine normal patients, you will find that in the axillary line the diaphragm dullness will move anywhere from six to eight fingers' breadth on forced expiration and forced inspiration. Also on percussion you will find that the rhomboid dullness will be lost or unusually high, the trapezius dullness will be high or lost, the perispinal dullness will be high, barring thickened pleura, and Krönig's isthmus will be broad instead of narrow, except where tuberculosis has narrowed it by infiltration and thickened pleura. The pericardial dullness in these cases of emphysema will be small. Where the pericardial dullness is not small, and you have an accurate case of emphysema, you will find that there are pericardial adhesions. Auscultation will bring to you the fact that expiration in advanced cases of emphysema may be four times as long as inspiration. In many of the early cases emphysema does not produce prolonged expiration because it has not become advanced. Pulmonary emphysema may be found limited to one lobe just by auscultation. You will find it limited over an upper right or an upper left, and then, when you start to look at your X-ray film, you will find that the trunks to that lobe are much wider than they were in another lobe, or

more than they should be in the normal lobe distribution.

The fluoroscope is most valuable; you will find that, instead of the area above the diaphragm, especially the left, becoming darker so that you cannot see through it, there is almost no dark area above the diaphragm on forced expiration of the emphysematous patient, and that the diaphragm does not move as much as it should.

In the lateral view you will find on deep inspiration that the heart separates far from the anterior wall, and you get an idea of the degree of emphysema involved by noting the size of the light area between the sternum and the heart on expiration and inspiration. When you do not get an enlarged anterior dark area, you have pericardial adhesions, but the posterior dark area will be enlarged.

It is your business, therefore, to determine how many hours your patient may be out of bed. It may be two, three, six, eight—maybe it is ten hours that a patient can afford to be up before they must go to bed. Most careful observation is the only way to determine how many hours a patient can be up and work successfully.

Just one thing more, by injecting iodized oil into the lung, we find that in emphysema the oil does not enter the air cells and give you the X-ray density of bronchopneumonia; in contrast, in the normal lung so injected (we have tried the oil from twenty degrees Centigrade up to body temperature) the oil will enter the air cells and give the density of bronchopneumonia. A wait of ten to twenty minutes may change this.

We feel that you have a definite method of measuring the degree of emphysema by

these oil injections. We have tried, and are trying, by studies of vital capacity to determine the degree of emphysema. So far we have nothing to report.

The symptoms of exhaustion following emphysema are dependent upon a fatigue phenomenon. The man or woman with emphysema gets up in the morning refreshed and fresh after a night's good rest. He or she can do almost anything for a short time. The elasticity of the lung has partly recovered. If you can prevent overexhaustion, the remaining elastic tissue fibers will function.

I want to leave with you the thought that, by physical examination, careful observation, and by the aid of the X-ray, you can determine whether your neurasthenic woman or man, your recovered tuberculosis patient, your sinus case, your case of chronic bronchitis, or your case of bronchiectasis is further handicapped by pulmonary emphysema. If so found, you can greatly help that patient by limiting his hours up and by remembering that there is no rest for such patients except in bed with the windows open and the clothes off and no interference. How many hours he can stay up with safety is the problem.

As general practitioners, of which I am one (I am just a common, ordinary doctor), we can return these patients to a satisfactory economic state if we will find and avoid their threshold of exhaustion. You can return many of these cases not only to economic security, but to happiness and self-respect and to the respect of their families. We must take the trouble to work out their problem.



## A REVIEW OF 292 CASES OF INCOMPLETE ABORTIONS\*

D. W. SMITH, B.A., M.D., Nashville

(From the Gynecological Department of the Nashville General Hospital)

THE TERM incomplete abortion as used in this paper will denote partial expulsion of conceptive products from the earliest period to the sixteenth week.

We can only realize the importance of this gynecological problem by a study of the statistics relative to the frequency of abortions. It has been estimated that one abortion occurs to every two and one-half confinements in the cities and one abortion to every five confinements in the country districts. With 2,500,000 confinements in the United States, distributed forty per cent in the cities and sixty per cent in the rural districts, we obtain approximately 700,000 abortions annually. This condition naturally occurs during childbearing years, namely fifteen to forty-five years of age. This period constitutes the most valuable period of a young mother's life not only to herself but to her home. Not only is the impregnated ovum destroyed but nearly as many deaths occur annually from this condition as occur annually from childbirth.

Etiologically abortions may be classed as: Spontaneous, therapeutic and criminally induced. The children's bureau on maternal mortality statistics estimated 37 per cent spontaneous, 13 per cent therapeutic and 50 per cent criminal out of 1,587 maternal deaths. In the larger cities the percentage of criminal abortions runs as high as 75 to 80 per cent. In 1922 the percentage of criminal abortions in Berlin was given as 89 per cent. Any effort on the writer's part to classify these cases as to etiology would be unreliable so far as a scientific study. I believe this would hold true in any institution because too frequently the patient denies criminal interference unto death.

The object of this study is to emphasize the importance of conservative treatment

of threatened, incomplete or inevitable abortions. Any patient with a diagnosis of threatened, inevitable or incomplete abortion with an elevation of temperature should be given an opportunity to establish an immunity against the infection which is undoubtedly present as evidenced by the elevation of temperature and leukocytosis.

The average age of these patients was 26.1 years. The ages ranged from fourteen to fifty-two.

It is of interest to note that the greatest number of abortions occurred in women who were married or had been—namely 249 out of 292 cases. Forty-three were single.

The parity of these patients showed a wide variation ranging from one to fourteen. The present pregnancy being the first in 68 cases or 23.2 per cent. In 20 cases the previous pregnancy records were not recorded. One hundred and eleven cases or 38.01 per cent gave a history of having had previous abortions. One case admitted eight previous abortions which was the greatest number.

The most common symptoms were: Hemorrhage, hemorrhage and abdominal pain, chills and fever. Bleeding in varying degrees was present in 263 cases. Lower abdominal pain was complained of in 175 cases. 30 cases, or 10.2 per cent, gave a history of one or more chills.

I divided these cases also as to febrile or afebrile, during their first hospital day. Two hundred and twenty-five, or 77.05 per cent, had an elevation of temperature greater than 99 degrees the first day. Sixty-seven cases, or 22.94 per cent, did not have an elevation of temperature greater than 99 degrees the first day.

Fifty-five and thirteen hundredths per cent, or 161 cases, had a hemoglobin of 75 per cent or less. In 14 cases there was no laboratory recorded. To my mind this

\*Read at meeting of Middle Tennessee Medical Association, Nashville Academy of Medicine, and Davidson County Medical Society.

helps to emphasize the importance of conservative management of these septic patients.

**Pathology**—The pregnant uterus with its increased vascular system and corresponding increase of lymphatic channels affords an ideal situation for the dissemination of infection. Postabortal and postpartum infections begin within the uterus and particularly at the placental attachment. The break of the placental attachment, exposed blood vessels and lymphatic channels meet all the requirements for bacterial incubation. In the uterine cavity of postabortal cases we are concerned with many organisms, but the streptococci are most dreaded since they are the causative factors in most deaths. Curtis has shown that a single intra-uterine instrumentation is almost harmless because following this there is a walling off process with leucocytes and round cells which goes on to resolution. But a second instrumentation would break down this fortification of leucocytes and round cells allowing a spread of the infection which may occur by lymphatic channels, blood stream or direct tissue extension. The extension by the blood stream usually follows a pre-existing thrombosis of the uterine vessels. Some men have felt the organisms invade the peritoneum by the way of the lumen of the fallopian tube resulting in peritonitis. The postabortal fallopian tube shows a perisalpingitis rather than endosalpingitis.

The five year resume of incomplete abortions in The Nashville General Hospital numbers 292 cases. I have divided this group into two divisions, namely: Those treated by conservative methods and those treated by what is generally called radical procedures. The two methods will be referred to again later in the paper. Cases treated by conservative methods number 189 with five deaths or 2.64 per cent mortality. Cases treated by so-called radical procedures number 103 with five deaths or 4.85 per cent mortality. Total number of deaths in the series is ten. Three cases out of 189 who were treated by conservative

methods returned later because of vaginal bleeding or 1.58 per cent of these cases required dilatation and curettage. Each of the three cases on second admission had dilatation and evacuation. One case out of 103 who had dilatation and evacuation returned later because of vaginal bleeding. This case on second admission received conservative treatment.

By conservative treatment we mean supportive measures, namely: Absolute rest in bed, head of bed elevated to twelve inches, pituitrin and fluid extract of ergot in sufficient quantity to control hemorrhage, at least 2,000 c.c. fluids daily, high caloric diet which has a low residue preferable, and blood transfusions when indicated. Vaginal packing should be done only after pituitrin and fluid extract of ergot have failed to control the hemorrhage, and then under strict aseptic conditions. Vaginal packing should not be allowed to remain in longer than for the emergency period. Rough manual examination certainly should be avoided at the time of original inspection. Dilatation, curettage, uterine packing can well be classed as radical procedures.

The economic aspect of medical or surgical care should always be given due thought. It is of interest to note that the average time in the hospital for those cases which received so-called radical treatment was 6.2 days. The average time in the hospital for those cases which received conservative treatment was 5.4 days. From this study one can reasonably assume that the radical procedures will not hasten the recovery of your patient, but to the contrary, prolong the period of disability.

Dr. W. O. Johnson, Louisville, Kentucky, reported 288 cases of incomplete abortions treated in Louisville City Hospital by conservative measures. Only 10 per cent of these cases required dilatation and evacuation, and this was done only after conservative measures had failed. Not a single death occurred in the 10 per cent group which had dilatation and curettage done. There were three deaths in the series of 288 cases reported by Dr. W. O. Johnson.



## A REVIEW OF THE DEATHS IN THE SERIES OF 292 CASES

Deaths among those who received conservative treatment.

Case 34993 — White, age 37, married. C. C. Abdominal pain and uterine hemorrhage, with history of chills 3 days before admission, also history of cough with blood tinged sputum. Died 28 hours after admission.

*Autopsy:* Ruptured uterus (incomplete abortion), peritonitis, lobar pneumonia, toxic nephritis.

Case 28049—Colored, age 41, married. Para six, third abortion. C. C. Vaginal hemorrhage. Last period 2 months ago. Admitted with temperature 102, pulse 110. Died third day after admission.

*Diagnosis:* Incomplete abortion, acute endometritis, lobar pneumonia.

Case 14152—White, age 24, widowed. Second abortion. C. C. Cramping pain in lower abdomen, nausea and vomiting. Admitted with temperature 103, pulse 90. Died third day after admission.

*Diagnosis:* Acute diffuse peritonitis. Incomplete abortion.

Case 13725 — White, age 40, widowed. Para three. Last period 4 months ago. C. C. Passed small fetus and afterbirth 3 days before admission. Admitted with temperature 104, pulse 112. Died on eighteenth day.

*Diagnosis:* Incomplete abortion. Septicemia.

Case 28846—Colored, age 26, married. Para two. C. C. Chills and vaginal bleeding. Three days before admission passed small fetus. Admitted with temperature 100, pulse 110. Died 62 hours after admission.

*Diagnosis:* Incomplete abortion. Septicemia.

## DEATHS AMONG THOSE WHO RECEIVED RADICAL TREATMENT

Case 28778—White, age 52, married, primipara. C. C. Chills and passing blood clots. Last period 2 months ago. Admitted with temperature 102.4, pulse 110. Dilata-

tion and curettage done on the day of admission. Chill the following day at 5 A.M. Died 8 hours later.

*Diagnosis:* Incomplete abortion.

Case 29299 — White, age 18, married. Primipara. C.C. Chills and vaginal bleeding. One week before admission cervix was dilated under anesthesia by a physician. Admitted with temperature 102.4, pulse 130. On admission under general anesthesia placental tissue removed with forceps and uterine cavity packed. Following uterine packing patient had an irregular temperature with a rise on the fourth day to 103.4, pulse 126. Died the tenth day.

*Diagnosis:* Incomplete abortion. Septicemia.

Case 3455—White, age 25, married. Para three. Second abortion. C.C. Pain in lower abdomen. Last period 2 months ago. History of having taken calomel, rhubarb and soda followed by quinine grains 15. Admitted with temperature 99, pulse 100. Third day in the hospital temperature 100.2, pulse 112, dilatation and curettage done. Following day temperature rose to 103.4, pulse 124. Died ninth day in hospital.

*Diagnosis:* Incomplete abortion.

Case 35585—White, age 25, married. (No history.) C.C. Abdominal pain and vaginal bleeding. Examination revealed moderate vaginal bleeding and marked abdominal distention. Temperature 97, pulse 124. Dilatation and curettage done on admission, temperature rose to 100.6, pulse 120. Died the same day.

*Diagnosis:* Incomplete abortion. Peritonitis.

Case 24104 — White, age 28, married. Para 4. C. C. Vaginal bleeding. Last period 2 months ago. Admitted with temperature 99, pulse 100. Third day in hospital temperature 101.6, pulse 120. Dilatation and curettage done. Following day temperature rose to 103.6, pulse 120. Positive blood culture for staphylococci third postoperative day. Died.

*Diagnosis:* Incomplete abortion. Septicemia.

## CONCLUSION

1. All incomplete abortion patients should be put to bed at absolute rest with head of bed elevated from 8 to 12 inches. Those cases which are septic should be hospitalized. *One-half c.c. of pituitrin every hour for about six doses.* May be repeated every half-hour if needed for hemorrhage. At the completion of the course of pituitrin give fluid extract of ergot *one drachm every three or four hours for four doses.*

2. A minimum of 2,000 c.c. fluid daily.

3. Original inspection should be made under strict aseptic conditions. Rough manual examination of the uterus and pelvic contents should be avoided. If remnants of placental tissue are found in ex-

ternal os at time of original inspection they should be removed by use of forceps.

4. Surgical intervention should not be employed unless conservative measures have failed, and then not until patient has had a normal temperature for at least three days.

5. Our patients are entitled to know the great dangers and complications which may ensue induced abortions.

## REFERENCES

1. Taussig, F. J.: Am. J. Obst. and Gynec., November, 1931.
2. Johnson, W. O.: Am. J. Obst. and Gynec., November, 1931.
3. Watkins, R. E.: Am. J. Obst. and Gynec., August, 1933.



## THE PROBLEM OF THE OBESE\*

EDWARD G. THOMPSON, A.B., M.D., F.A.C.P., Memphis

THE RECOGNITION of obesity is as a rule quite simple. In a well-marked case diagnosis can be made by the most casual inspection. At times, however, other factors have to be considered. The term "overweight" is not synonymous with obesity. Increase in weight from tumors, ascites, or generalized edema is not uncommon, but as a rule offers no difficulty in diagnosis.

An individual with large bones and well-developed musculature will weigh more than the given normal for age and height, yet he would not be obese. One who by forced feeding has brought his weight from normal or below to above normal would not fall in the obese class. Such an individual would return to his previous state on cessation of forced feeding. Conversely a person previously obese, who by restriction of diet has brought his weight to within normal limits, would regain former weight if restrictions of diet were removed. Such a person should be classified as obese and has been likened by Rony (*Ill. Med. Jour.*, Vol. LIX, No. 4) to a diabetic who from restriction of carbohydrates is sugar free, but nevertheless is yet a diabetic.

Having diagnosed obesity there then arises the more difficult problem of determining the cause. From the history, distribution of fat, physical examination, and basal metabolic studies certain cases can be definitely classified as of endocrine origin, particularly thyroid, gonads or pituitary. These forms, except in certain cases where there may be overlapping, are endocrine problems and should be considered as separate entities from simple obesity.

Why are some persons lean, some of average weight, and some fat? It would seem a rational explanation would be the ratio between the caloric intake and out-

put. This would appear to be a simple example in mathematics. If the intake exceeds the output then fat is deposited and vice versa. If the two are equal then the weight is stationary. This undoubtedly explains certain cases, but certainly not all. The typical fat person is looked upon as one who eats too much and exercises too little. Some fat people, however, eat moderately or even lightly and exercise freely yet maintain excess weight. On the other hand, it is not uncommon to see the lean subject eat excessively and exercise little. A comment commonly heard is, "He eats so much it makes him poor to carry it around." All cases of obesity cannot be explained on this basis as ordinarily understood.

**Familial tendency:** Obesity is characteristic of some families. There may be an inherited diathesis, but in part it can be explained by the same dietary habits and mode of living.

**Metabolism:** The average basal metabolic rate of the obese is within normal limits. Rony, Evans, and Strong (*J.A. M.A.*, Vol. 97, No. 15) and others have pointed out that these basal metabolic rates are normal only as compared to other fat people, but if calculated on the basis of their normal weight and body surface the rate is above normal and in some cases markedly above normal. They recite numerous causes why this should be. It cannot be explained by the increase in fat tissue, for the increase in basal metabolism is out of proportion to increase in fat. But with increase in fat there is increase in interstitial tissues, blood vessels, skin and subcutaneous tissues, increase in heart, lungs, and other organs. Prolonged over-feeding also may be a factor.

McLester (*Vol. 1, Oxford Monograph*) quotes Muller, from the German literature, in the opinion that the obese utilizes food to better advantage than does the normal individual and can meet his needs for en-

\*Read before the Shelby County Medical Society, Memphis.

ergy on a subnormal diet and accumulate a surplus as fat.

Specific dynamic action of food: Wong, Strause, and Saunders (*Arch. Int. Med.*, Vol. 34, No. 4) call attention to influence of specific dynamic action of food in affecting weight. They state, "Protein showed a very slight dynamic action in obese people. Thin people on the contrary showed a very high specific dynamic action of protein. Normal persons followed much the same course as the thin people, but to a less degree. Although obese persons did not react in a uniform manner to carbohydrate intake, the average for the group indicated a lessened specific dynamic action of carbohydrates. There was very little, if any, specific dynamic action of fat."

Rony quotes a number of German investigators who found the specific dynamic action of foods was usually low in obesity, thus allowing a saving in oxidizable material and resultant fat deposition. On the other hand, Benedict and Carpenter, in this country, found that the specific dynamic action of food varies as much in the obese as in the normal. Rony points out there must be a fat regulating mechanism working in the body similar to heat centers regulating temperature. That basically human obesity is endogenous, due to abnormally high setting of fat content regulating mechanism, and that anomalies of caloric intake and output are means used by the abnormally set fat regulating mechanism. An individual whose mechanism is set for 220 pounds can maintain this weight without restriction. By restriction of diet he may reduce to below 200 and maintain this by continuation of restricted diet. On withdrawal of restrictions, however, tendency to gain reappears.

Penalties of obesity: At the meeting of the Southern Medical Association in Washington, in 1922 or 1923, there was a paper entitled the "Parasitism of Fat." The author's name has escaped my mind and was not encountered in references consulted, but fat was referred to as a parasite which lives at the expense of the host and contributes nothing to its upkeep ex-

cept in time of extreme starvation. Life expectancy in the obese is less than in those of normal weight, according to life insurance company statistics. It has been said that expectancy is curtailed in direct proportion to the excess of waist measure over chest measure. The cosmetic effect is one which often causes women to consult the physician. There is extra burden thrown on the heart, blood vessels and kidneys. The pads of fat surrounding the heart and deposition of fat among the muscle fibers interfere with its action—there is more blood to be pumped to the extra fatty tissue. All this means added excretory work for the kidneys. Fat people are more susceptible to arteriosclerosis and hypertension. Joslin and others have frequently emphasized the greater incidence of diabetes mellitus among the obese. They have less resistance to infectious diseases and are poor surgical risks. The diminished activity incident to excessive weight tends to constipation, digestive disorders and other conditions incident to a sedentary life. Fat people suffer from heat excessively. They perspire excessively with resultant uncomfortable and unpleasant conditions incident to disordered hygiene.

Treatment: Prophylactic. Where there is a familial tendency to obesity, diabetes or cardiovascular diseases, it is particularly important that members of such families should not grow fat. The physician can often tactfully bring this to their attention when attending them for perhaps some entirely extraneous condition. The preventive treatment is not unlike the actual treatment except perhaps in degree.

Treatment: Before instituting treatment a complete history should be obtained, general physical examination made and appropriate laboratory studies made, as seem indicated. From this one should be able to determine whether it is a specific endocrine disturbance or a case of simple obesity. Also one should determine the general physical condition of the patient, particularly the cardiovascular system, in order to determine the limitations in the management of the case. The treatment might be divided into:



1. Dietic.
2. Regulation in mode of living.
3. Drugs.

Details of treatment will depend on the degree of obesity, age, social status, physical condition, and psychology of patient, and conditions under which treatment is carried out. The very young and the aged should be reduced very slowly, if at all.

Strong, McClagge and Evans (Amer. Jour. Med. Sc., May, 1934) report a series of cases in which rapid reduction was accomplished on diets averaging 58 gm. protein, 14 gm. carbohydrates, and 8 gm. fat, aggregating about 360 calories. Although they disregarded the ketogenic antiketogenic ratio, they noted no acidosis in their cases. They do insist, however, on the body requirements of proteins, vitamins, and inorganic salts. Their patients were under close institutional supervision. No unpleasant subjective or objective symptoms were reported. On the other hand, the patients reported a sense of well-being. The use of such drastic diets is hardly safe and certainly not practicable except under close institutional supervision. In the majority of cases the slow, gradual reduction is preferable. The rate of loss depends on the degree of overweight. As a rule, from one to three pounds weekly are the desirable limits. The first few weeks after institution of treatment the loss is more rapid. This early rapid weight loss is attributed in part to loss of water stored in fatty tissue. Subsequent failure to lose may be due to replacement of this water.

Despite the results of the above-mentioned observers it has been a personal observation that rapid reduction causes unpleasant feeling of weakness and prostration with a drawn expression and wrinkling of skin. It is possible that some of the subjective symptoms might have been due to protein deficiency. In the estimation of a diet it is essential that the amount of protein sufficient for body requirements be allowed. Estimates of different observers vary from one to two gm. per kilogram of body weight. As mentioned above, it is essential that the body requirements of vitamins and inorganic salts be included.

The reduction in the total caloric intake will depend on the individual case. Where possible it is better to indicate amounts of food to be taken in household measures rather than by weight. To weigh all food taken is apt to become irksome and cause the patient to become disgusted and discontinue treatment. The menu should be made with as much regard as possible to the patient's taste. The leafy vegetables are filling and tend to appease the appetite with a minimal number of calories. The craving for sweets should be satisfied with a reasonable amount of hard candy and simple desserts. Saccharin is a satisfactory substitute for sugar in tea and coffee.

With a gradual loss of weight most of these patients experience a remarkable sense of well-being. Evans and Strong (J.A.M.A., Vol. 97, No. 15) believe this is out of proportion to mechanical relief from burden of pounds lost, and attribute it to relatively sharp drop in metabolic level with a consequent reduction in the physiologic load.

Change in mode of living: The amount of physical activity the patient should undertake depends on degree of obesity and condition of the cardiovascular system. Granting the physical condition warrants it, increased exercise may defeat the purpose for which it is intended by increasing the appetite and thereby either causing an increased intake of food or increased discomfort to the patient from hunger.

Drugs: The routine use of thyroid (if it can be called a drug) is not to be recommended in simple obesity. In selected cases it might be of value, but in guarded doses and only if the patient can be under repeated observation. In fact, under any form of treatment the obese patient should be under regular observation. The danger of using the proprietary preparations for reducing should be explained to their would-be users. Presumably most of them contain thyroid as their active ingredient. Where the basal metabolic rate is low, or borders on low, or where there may be evidence of thyroid deficiency, thyroid may be used as an adjuvant, but not exclusive of other measures.

The writer has had no experience with dinitrophenol. Cutting, Fainter, and Stockton (J.A.M.A., December 30, 1933) (J.A.M.A., November 4, 1933) report favorably on its use. In a series of 113 cases satisfactory reduction was obtained in 104. In nine cases the drug was discontinued on account of unpleasant reaction. In the J.A.M.A., September 20, 1933, in the editorial column, a newspaper is quoted as reporting a death from an overdose of this drug. E. C. Dodds and associates in England Lancet, August 12, 1933, found dinitroorthocresol preferable to dinitrophenol

for use in obesity. In a case of myxedema, however, they found it an unsatisfactory substitute for thyroid. In this case the basal metabolic rate was raised to plus 20 with no improvement in the myxedema. Upon use of thyroid the basal metabolic rate was raised to plus 10 with complete relief of myxedema.

With careful management of an obese case, before irreparable damage has been done, it is the opinion of the writer that years of usefulness may be added to that patient's life.



## ECTOPIC PREGNANCY\*

GEO. R. McSWAIN, M.D., F.A.C.S., Paris

THIS PAPER is being presented simply as an outline of a more or less common and extremely dangerous acute intra-abdominal condition, and no originality is claimed for any portion of the discussion. Inasmuch as the ratio to normal births is variously estimated at from one in 250 to one in 267<sup>1</sup>, the relative frequency of the condition is easily seen. Results being frequently disastrous and tragic, it is my desire to call your attention to some of the more important features of the condition. A later table gives it one to 303<sup>2</sup> in Philadelphia.

Extrauterine pregnancy may be defined as that condition in which a fecundated ovum lodges and imbeds itself in any situation outside of the cavity of the uterus, nidation proceeding in the aberrant site for a variable period.

The first recorded case is that of one Albucasis, an Arabian physician, living in Spain and flourishing about the middle of the eleventh century. He reports a case wherein he saw the parts of a fetal body escaping from the abdomen of a woman by the process of suppuration<sup>2</sup>. Another interesting example is that of the lithopedion of Sens reported by Cordaeus early in the sixteenth century<sup>2</sup>. A cut of this lithopedion is published by Roussetti in Bauhin's *Gynecorum*. During the sixteenth century several cases are reported of abdominal sections with the removal of a fetus, one or more living and several dead, and one a skeleton. No mention being made as to whether or not these fetuses were intrauterine or extrauterine, it is safest to assume that they were really the first authentic instances of Caesarian section. It is interesting to note that, prior to the operation the woman was tied; the abdominal and uterine or other cavities being washed with wine, oil and aromatics, and closure made "as in swine," a swine

spayer having performed one of these operations! The earliest absolutely definite case of surgical interference for the removal of the abdominal fetus is that of Primerose in 1594. The history of this patient has become classical, she having been operated in 1591 and again in 1594 for extrauterine pregnancy<sup>2</sup>. In the United States the first authentic case was operated in 1759 by Dr. John Bard, of New York City. The patient recovered<sup>2</sup>. Other cases were reported at various intervals; the mortality however was high, estimated on a basis of 500 cases reported by Parry at about 67.2 per cent. A memoir by Campbell of Edinburgh in 1842 and a later one by Parry of Philadelphia in 1876 mark the beginning of real study and scientific classification of this disease and correlation of its symptoms and results.

Varieties of ectopic pregnancy may be classified as primary and secondary. Primary being those in which nidation proceeds at the first point of arrest, and secondary when its position is changed by rupture or further development.

Primary forms are: (1) Interstitial, which may secondarily become intrauterine, abdominal, or intraligamentary; (2) tubal, which may secondarily become tubal abortion, tuboabdominal, tubo-ovarian, abdominal, or intraligamentary; (3) ovarian, which may become secondarily abdominal.

*Terminations:* Tubal pregnancy may primarily eventuate in: (1) Early death of the ovum with complete resorption and a restoration of the tube to its prepregnant condition; (2) death of the embryo with formation of a tubal mole; (3) tubal abortion; (4) rupture of the pregnant tube, either into the peritoneal cavity or within the folds of the broad ligament; (5) the growth and development of the embryo may proceed to term when the fetus either dies as a result of nutritional failure or is delivered by abdominal section; (6) if the pregnancy be interstitial, the fetus may be

\*Read at Tri-County Medical Society, Henry, Benton, Weakley, Carroll Counties, March 13, 1935.

expelled gradually into the uterine cavity, the placenta remaining attached to the cornual wall, and the pregnancy terminate by vaginal delivery.

*Secondary terminations:* The embryo may be expelled from the tube, the placenta remaining behind, the pregnancy going to term, with the fetus free in the abdominal cavity, and the placenta implanted in the tube—the so-called tubo-ovarian pregnancy; or the entire living ovum may be expelled, the placenta reattaching itself to any tissue within the peritoneal cavity, and the pregnancy proceeding to term—secondary abdominal pregnancy. In either of these events, the fetus, unless removed by laparotomy, dies or proceeds to suppuration and necrosis, lithopedion formation, mummification, or adipocere.

Ovarian pregnancy may terminate in rupture into the abdominal cavity with hemorrhage and death of the fetus, rupture of the sac with secondary ovario-abdominal pregnancy, or rupture with secondary attachment of the ovum-abdominal pregnancy secondary to primary ovarian gestation.

Rupture of the tube and tubal abortion are the commonest terminations of the above classification<sup>2</sup>.

As to the cause of the condition there is much discussion and speculation, but from the mass of literature no specific pathology has as yet been developed which is applicable to the condition as a whole. However, it is universally held that the cause simply must be some interference with the passage of the ovum from the fimbriated extremity of the tube to the uterine cavity. Briefly such interference may result from: (1) obstruction of the lumen from without; (2) obstruction of the lumen from within; (3) anomalies of the tubal lumen, such as accessory tubes, etc., into which the ovum falls and can be propelled no further; (4) decidual reaction in the tube; (5) the growth of the fertilized ovum outside the tube to such an extent that, when the ovum finally enters the tube, its size prevents its passage. Obstructions from without the lumen may result from peritubal adhesions, which are of rather frequent occurrence as

the end result of a perisalpingitis whose etiology may be of intratubal origin or inflammatory by contiguity of tissue following appendicitis, diverticulitis, or a general peritonitis from any cause, as a perforated gastric ulcer, etc.

Obstruction of the lumen from within seems in the last analysis to be the underlying cause in the vast majority of cases of tubal pregnancies. The ciliary current of the tube being toward the uterus, and fertilization normally occurring within the tube, it is easy to see that any interference with this ciliary function would tend to cause the arrest of the impregnated ovum in the tube. If the size of the tube has been decreased sufficiently, or if the ciliary function has been destroyed by inflammatory process, such arrest will occur. This arrest, even if acting for but a short while, will permit the rapidly growing embryo to attain such dimensions that under no circumstances could it penetrate the constricted area, even though the tubal peristaltic action becomes very powerful.

The symptomatology and diagnosis are sometimes very characteristic, the diagnosis being frequently made on history and simple inspection of the patient. At other times the symptoms presented are most confusing, and a positive diagnosis extremely difficult.

Diagnostic efforts should be made toward ascertaining the situation before rupture takes place when possible. Certain features are usually present, but diagnosis before rupture or tubal abortion is usually very difficult. History is important, there frequently being a history of a previous operation or an attack of lower abdominal pain which may be interpreted as being a salpingitis of more or less severity; there is usually a history also of a somewhat atypical menstruation, that is, the patient has gone overtime a week or two, then had some bleeding, or maybe a slight spotting associated with some degree of abdominal pain, usually on one side of the pelvis; the blood frequently is more viscid and darker than usual. The pain is usually cramp-like and of moderate severity before rupture. Bleeding almost invariably indicates the



death of the embryo. An important differential point is that the bleeding of ectopic gestation is rarely large in amount. Concomitant symptoms of pregnancy are usually present, such as amenorrhea, nausea or vomiting; breast symptoms, softening of the cervix, discoloration of the cervix and vagina, and so forth. Examination may reveal the uterus anteflexed and a mass lateral to the uterus. Vaginal examinations should be carried out with extreme care, as a rough examination might cause a rupture of the tube with severe or even fatal hemorrhage. And in an early tubal pregnancy before rupture the mass may be no larger than an olive.

Diagnosis after tubal abortion or rupture is not so difficult. The acute crisis of tubal rupture is highly characteristic: a sudden attack of severe pelvic pain, frequently excruciating, and on the affected side, associated probably with fainting, a vaginal discharge of blood, and subsequent symptoms of shock, all pointing to an internal hemorrhage, and this case should be easily diagnosed almost at a glance when the history is considered.

Less acute cases have more or less cramp-like pain. A rather severe colic or one-sided pelvic pain when accompanied by a bloody show is highly suggestive. The pain may be relieved, to recur later with the same characteristics; if no large hemorrhage has occurred, there may be an interval of several hours or even a day or two before it recurs. However, during this period, the patient is in a condition where any minute an enormous loss of blood may take place, and it is essential to make every possible effort to properly diagnose the true state of affairs. Cullen has called attention to a bluish discoloration around the navel—a reliable sign of intra-abdominal hemorrhage when present. I have seen it once. The leucocyte count is usually high and rises rapidly from hour to hour. Examination after tubal abortion or rupture may reveal pathognomic evidence: uterus is enlarged, usually anteflexed, and on the side affected a boggy, ill-defined mass palpated, and if this floats anteriorly it is strongly in favor of tubal pregnancy and

against a salpingitis. Pelvic hematocele may cause fullness of the culdesac, doughy in character, and may later become hard and organized. Rectal examination should be made. Diagnostic puncture of the culdesac is rather a dangerous procedure, as it might carry infection into a sterile area, and should be either used not at all or with a great deal of caution. Curettage has been recommended in some cases as a final diagnostic procedure to determine the presence or absence of intrauterine pregnancy, and should be made only after preparations for abdominal section have been completed. The diagnosis of secondary development to term of the fetus should not present a great deal of difficulty.

The treatment of the condition is essentially surgical, the proportion of cases in which nature will effect a cure by resorption being so small that they should not be considered; because we are really dealing with a life and death emergency, and once the diagnosis is made, surgical procedures should be entered into—proper measures, of course, having been instituted for shock, etc. Too much time must not be lost in taking pulse, counting cells, getting blood pressure weary hour after weary hour, while the patient's lifeblood may be ebbing away.

The surgical procedures will not be entered into in this discussion, they should be familiar to all who enter the abdomen for any purpose. A word or two relative to the advanced cases in which the pregnancy has advanced past the fifth or sixth month or even to term might be interesting. There should be no difficulty in removing the child. Adhesions, etc., may be and will be present if it has been dead for a while, but its removal is easy—the care of the placenta may be difficult or even impossible. It may be attached anywhere and its removal might tear away important tissues or result in fatal hemorrhage. If the placental circulation has been inactive for some time, it can probably be peeled away. With a living child and an active placental circulation, it presents a real surgical difficulty. Two methods for management are available when the detachment

of the placenta is impossible without a fatality: marsupialization, with stitching of the edges of the gestation sac to the abdominal wall after cutting the cord close to its placental attachment, being the time-honored plan. The cavity being packed with gauze, which is changed at frequent intervals, and the separation aided by gentle traction. In a few weeks the tissue has sloughed out and a sinus remains which will usually close, repair of the abdominal wall being done later if necessary. The other method being to leave the placenta in situ, close the abdomen, and depend upon the absorptive powers of the peritoneum to take care of it. Beck<sup>2</sup> placed three-fifths of a 500 gr. placenta in the abdomen of a dog—it recovered promptly, and two months later the abdomen was opened and no trace of the placenta could be found. He adopted this procedure in twelve cases, three died; and during the same period marsupialization was done on fifty-two women with twenty-two deaths, a mortality of 38.7 per cent against 33 per cent where the placenta was left in situ with the abdomen closed. About the thirty-eighth week is apparently the best time to operate these late cases when the child is living; it seems, however, that a great proportion of these children are monstrosities or badly deformed, and, after all, the life of the mother is to us the most important.

Before giving a very brief outline of a few cases I wish to call attention to some unusual ectopic pregnancies reported in the literature. Wallace<sup>3</sup>, reported by Warbasse, found a tubal pregnancy before rupture, opened the tube, carefully dissected the fetus with its membranes, placed it into the uterus which he had opened, and 228 days later a full-term male child was delivered! These cases have ruptured into the sigmoid<sup>4</sup> and into the bladder to be extruded by suppuration, bones being forced out during the process; intra and extra-uterine pregnancy at the same time is reported<sup>5</sup>, and Jewett<sup>6</sup> reports tubal twins. The literature is filled with unusual and bizarre end results of this condition, lithopedions being found with a fair degree of frequency.

#### A BRIEF SUMMARY OF CASES

1. Elderly widow suddenly seized with violent pain in lower abdomen on right side, fainted, vomited, seen in a state of collapse, and no satisfactory history obtainable on account, we presume, of the unmarried state. Some uterine bleeding and nothing found on vaginal. Ruptured right tube found with large amount of fresh blood and clots in the abdomen. She also fortunately had a cystic right ovary the size of a lemon which was removed and presented to her with our compliments to show her family and friends the cause of her trouble. Seemed very grateful. Quick recovery.

2 Young unmarried woman, missed a period, irregular flow, severe right-sided pain, nausea, and vomiting; rigid right rectus, tenderness in the area. Pain of a more or less intermittent type, but extremely severe at times. Tubal abortion type found at operation. Right salpingectomy and appendectomy. Recovered. Irrelevant abdominal section three years later.

3. Married woman, one child, age eight, no other pregnancies. Missed a period, irregular flow, spotting daily, thought she was pregnant. Had morning nausea, etc. Suddenly seized with severe pain in lower right abdomen, fainted, and in a state of mild shock when seen. Ectopic diagnosed and surgery advised and refused. Waited for forty-eight hours with intermittent pain in the meantime of varying degrees of severity, and slight flow daily. No palpable masses. Had another severe paroxysm of pain and consented to surgical intervention. Right tubal abortion type. Salpingectomy. Recovered.

4. Married woman, age 38, four children, youngest age four. Delayed menses for past six or eight months, five-week average interval. No menses for eight weeks at onset of present illness, but some irregular flow during past ten days. Sudden violent pain in lower abdomen in early morning—almost fainted, mild shock. Morphine did not quiet. Low abdominal pain, slight rigidity and distention, tenderness and some rigidity, exquisite tenderness later developed on left side. No masses. Left tube ruptured, but conception products check-



ing bleeding; tube was lying anteriorly to broad ligament. Salpingectomy, appendectomy. Recovery.

5. Ectopic. Married woman, age 27, no children. Missed a period, had vague indefinite lower right abdominal pain for several days, about two weeks overdue, thought menses were trying to be established. Day of admission sudden violent lower abdominal pain, fainted, shock. Brought to clinic in state of rather severe shock. Ruptured right tube with abdomen filled with fresh blood and clots. Right salpingectomy. Quick recovery. (No examinations were made of this patient. Diagnosis evident from history and signs of severe internal hemorrhage.)

6. Married, age 30, one child age six. Missed period three weeks. While in her car fifteen miles out was suddenly seized with excruciating abdominal pain, fainted, brought to clinic in same car by husband who was with her—almost fainted again as she was being brought in. Saw her lying on office table, and from his story and appearance of shock, pulse, and other indications of internal hemorrhage, diagnosis was made. Physical examination negative, and no vaginal for a while as efforts were directed toward combatting her extreme shock. Reacted, advised of condition, operative procedure refused, but consented to remain in hospital. Some pain, and under fluids, etc., the blood pressure would become elevated slightly, but when it exceeded 106 she began to feel faint, the pulse would pick up, and apparently was having fresh bleeding. This continued for about forty-eight hours while the family was discussing the situation with friends, neighbors, etc., and finally consented to surgery which was done, the patient having been matched for transfusion. Abdomen filled with fresh blood and clots, the pregnancy extruding from the tube and so placed that it apparently was to some extent at least holding the bleeding in partial check. It presented directly beneath our incision, just above a dense mass of adhesions from a previous abdominal operation, and thus the operation was quickly completed with

a right salpingectomy requiring only twenty minutes. Recovered.

7. Age 30, two children, youngest age 16 months. Previous surgery, appendectomy eleven years ago; drainage abdominal abscess two years ago. Menses four weeks overdue. For past two weeks had been having low abdominal pain, excruciating at times, with irregular spotting. Treated for bladder trouble elsewhere and cystoscopy advised. Doughy mass in pelvis and ectopic diagnosed and surgery advised—refused—and went home; detailed instructions as to symptoms, etc., she might have were given and dangers outlined. Called us eight days after first admission, stating that she had had extreme low abdominal pain and several fainting spells, readmitted to clinic with large doughy mass in the left side of pelvis. Operation revealed right ectopic which had been pulled over to left, tubal abortion with hematocele, a left pyosalpinx. Both tubes removed and uterus suspended (Baldy Webster) as patient was in very good condition and uterus completely retroverted. Recovered.

8. Age 21, no children. No previous surgery. Bilateral low abdominal pain two years ago. Severe pains in lower right quadrant day before admission, the period being ten days overdue. Slight blood tinged vaginal discharge for past two days. Extremely severe pain in right lower abdomen before seen, no palpable masses, but ectopic diagnosed and patient brought to clinic, operated on by Dr. Barton McSwain. Right tube ruptured with the pregnancy, very effectively blocking bleeding, although there were several hundred cc. of blood and some clots in the peritoneal cavity. Right salpingectomy. Left tube scarred and showing evidence of previous inflammatory process, not removed due to age of patient and no children. A rudimentary appendix the size of a match removed. Recovered.

9. Age 38. Appendectomy nineteen years ago. One child age 18. No other pregnancies. Last regular period January 16, 1930. May 18 a slight bloody discharge and lower abdominal pain. This patient continued to have pain, slight spotting, and

some nausea for several days. Surgery was advised and refused, as there was a temporary lapse in pain and other symptoms. She had quite a bit of pain referred to rectum during the course of the illness. This case was rather prolonged, as her pain and symptoms would come and go, with the thought of ectopic uppermost in our minds at all times and surgery being advised. Finally on June 7 pain became very severe and she was brought to the clinic. Preparations were complete for operation and the patient was on carriage on the way to the operating room when she screamed in agony and went into a state of collapse. Intravenous saline was begun with the anesthetic and the abdomen hurriedly opened with the patient in extreme shock. Active bleeding was in progress, and old adhesions in the right iliac fossa being separated, the bleeding was discovered to be coming from a ruptured ovarian pregnancy. Pedicle quickly clamped and the ovum with its pregnancy removed. Recovered.

This specimen was sent to the laboratory for confirmation of the diagnosis of primary ovarian pregnancy which is a rather rare condition. All the necessary criteria were present in this case. These criteria being:

1. The tube on the affected side must be intact.
2. The fetal sac must occupy the position of the ovary.
3. It must be connected with the uterus by the utero-ovarian ligament.
4. Definite ovarian tissue must be found in the sac wall<sup>2</sup>.

This condition as stated is a rather rare form of extrauterine pregnancy. Prior to this case, Cramer<sup>7</sup> had found in the litera-

ture forty-five cases, this one being the forty-sixth, his the forty-seventh; and in the *Annals of Surgery* of January, 1935, Brown<sup>8</sup> reported another which totals forty-eight authentic cases of primary ovarian pregnancy on record.

#### SUMMARY

1. We have called attention to extrauterine pregnancy because of its relative frequency.

2. The treatment is essentially surgical, and constitutes a surgical emergency.

3. Extreme gentleness should be the rule in examination, in preparation for the operation, and during the operation itself.

4. An authentic case of primary ovarian pregnancy is reported among the nine cases operated at our clinic during recent years, four of these having been admitted during 1934.

5. Nine cases reported, all recovered: one primary ovarian, four tubal rupture, three tubal abortion, one tubal abortion with hematocele.

#### BIBLIOGRAPHY

- (1) Echols: *Journal American Medical*. December 1, 1934.
- (2) Shuman: "Extrauterine Pregnancy." D. Appleton and Co., 1922.
- (3) Warbasse: Quoting Wallace from *Surgery, Gynecology and Obstetrics*, May, 1917.
- (4) Clark: *Journal American Medical Association*, October 8, 1932.
- (5) Bland: Goldstein and Bolton. *Surgery, Gynecology and Obstetrics*, May, 1933.
- (6) Jewett: *American Journal Obstetrics and Gynecology*.
- (7) Crammer: *Surgery, Gynecology and Obstetrics*, January, 1931.
- (8) Brown: *American Journal of Surgery*, January, 1935.



# THE JOURNAL

OF THE

## TENNESSEE STATE MEDICAL ASSOCIATION

Devoted to the Interests of the Medical Profession of Tennessee  
Office of Publication, 510 Doctors Bldg., Nashville, Tenn.

Acceptance for mailing at special rate of postage provided for  
in Section 1103, Act of October 3, 1917,  
authorized July 15, 1932.

H. H. SHOULDERS, M.D., Editor and Secretary

JULY, 1935

## EDITORIAL

### DR. SIDNEY BURWELL

Dr. Sidney Burwell came to Nashville, has lived and worked among us for a few years, and is now going away.

Many men and women have come and gone in the past. Many, doubtless, will come and go in the future. Few of them, however, have done and few will do just what Dr. Burwell has done. He brought with him the attributes of the best type of doctor. Among them are: An abundance of scientific knowledge; a high sense of professional responsibility toward his patient and his confreres; a keen appreciation of ethical principles—in short, the best manners. He is leaving with us pleasant recollections of contacts with him and an appreciation of him as a man and as a doctor. He is taking away with him our *good will*.

### A MUCH NEEDED PRAYER

BY NICHOLAS MURRAY BUTLER

We chanced to read an address delivered by Dr. Butler to the graduating class at Columbia University, June 4, 1935, with the above title. We sought and obtained permission to reproduce it in the JOURNAL. It does not deal directly with a medical subject. It does, however, deal with those influences and philosophies which if allowed to run will involve America in one of the meanest forms of political medicine we can have.

It is believed that this address will be enjoyed by our readers.

### *An Address Delivered at the 181st Commencement of Columbia University, June 4, 1935*

The Litany of the Book of Common Prayer reaches the highest plane of self-examination as well as that of human aspiration. Its content reflects the thought of Saint Chrysostom and of Martin Luther, but its superb form is cast in the classic English of Cranmer. There is no depth of human feeling which it does not sound and no height of human effort to which it does not rise. It is not, therefore, a prayer for any one time or place or circumstance; it is a prayer everlasting and without limit of time or place. It is a prayer for today and tomorrow as well as for yesterday.

In opening his classic work on *The Decline and Fall of the Roman Empire*, Gibbon used these words: "In the second century of the Christian era, the Empire of Rome comprehended the fairest part of the earth and the most civilized portion of mankind. . . . The gentle, but powerful, influence of laws and manners had gradually cemented the union of the provinces. Their peaceful inhabitants enjoyed and abused the advantages of wealth and luxury. The image of a free constitution was preserved with decent reverence." There followed a happy and prosperous period of some four-score years, during which the great portion of the civilized world enjoyed peace, prosperity, and contentment. Civilized man has not been so happy and so contented from that day to this.

The world of today is not so fortunate or so happy by any means. Its action, or more accurately its inaction, is the natural and necessary result of world-wide lack of confidence. The world is, therefore, merely drifting on the tide of circumstance, with dangerous rocks and shoals surrounding it on every side. Governments do not believe what other governments may say, largely because they do not believe what they themselves say. The plighted word of a government given in a solemn treaty is now too often looked upon either as a merely rhetorical record of a dubious aspiration, or as a contract to be set aside more or less blunt-

ly if occasion or advantage shall so invite. There is no technicality of language or of law to which men and governments will not resort in order to escape the obligation to remain true to their plighted faith. Had the allies who dictated the Treaty of Versailles kept their word in the matter of reduction of armaments which they voluntarily and clearly pledged, Germany would have been deprived of the invitation to enter upon the amazing course of action which has recently been hers, to the dismay and disturbance of the whole world. Had Japan kept the faith instead of yielding to the pressure of her militaristic group and of economic advantage, we might by this time have seen a peaceful and orderly and a highly approved extension of Japan's influence in the Orient without any breach whatsoever of morals or of public law. When sixty-odd nations, including our own, quickly ratified the Pact of Paris by which war was renounced as an instrument of national policy, and then immediately entered upon a huge increase in their appropriations for all the instruments of war, they did as much to bring about, to deepen, and to prolong the world-wide economic depression as any single force or influence could possibly have done. They absolutely destroyed confidence in their plighted word.

It is precisely this which is the matter with the twentieth century world, namely, fundamental and far-reaching lack of moral integrity, since nothing can be more disastrous than for a government to fail to keep its word.

Moreover, both within nations and between nations we are confronted day by day with a really appalling display of pride, vainglory, and hypocrisy, as well as of envy, hatred, and malice and all uncharitableness, where good faith, kindness, and the highest spirit of human cooperation should always rule. He who lives on the other side of a more or less imaginary line of national boundary, particularly if he speaks another language, is looked upon as an outlaw deserving of no kindness, no generous understanding, and no cooperative

effort of any kind. He must shift for himself no matter at what risk of damage or even of death. This is so preposterous an attitude that all morality, to say nothing of all Christian feeling, is revolted by it. "Patriotism," said Dr. Johnson, "is the last refuge of a scoundrel." He made this remark to a group which included Charles James Fox, Sir Joshua Reynolds, Edward Gibbon, and Boswell himself. What did he mean by it? "Not," says Dr. Boswell, "a real and generous love of country, but that pretended patriotism which so many in all ages and countries have made a cloak for self-interest." What Dr. Johnson saw so clearly nearly two hundred years ago is manifested today in unprecedented degree. It is not true but false patriotism which is exhibited in envy, hatred, and malice toward nations other than our own. It is not praiseworthy, it is despicable.

Within a nation matters have become even worse. He who by dint of natural endowment or well-used opportunity or exceptional capacity has climbed the ladder of human ambition to a point where he is in advance of many of his fellows either in agriculture, in industry, in commerce, or in finance is tacitly assumed by multitudes to owe his success either to illicit and immoral conduct, to imposition practiced upon his less fortunate or less well-endowed fellows, or to a course of highly reprehensible and even dishonest behavior. Such as these are quickly assailed as enemies of the body politic and the social order, not because they have failed, but because they have succeeded; not because they have not worked, but because they have worked and been able to save such surplus of their earnings as remained after the cost of their livelihood had been met. Quickly we are told that success in any field of human effort is the result of privilege, of favoritism, or of fraud, and that the only just cure for these things is that we should all be compelled to be failures by the compulsion of the many to whom success is denied or for whom it is impossible through lack either of intelligence or of character or of environment or of opportunity.



The first stage in the criticism and denunciation which so often follow success of any kind, but particularly material success, is envy, which, in turn, is quickly attended by hate and that by malice. It was Chesterfield who shrewdly said: "People hate those who make them feel their inferiority." The perfectly baseless notion that society is organized in fixed, definite, and mutually antagonistic class groups, each of which should be intent upon putting barriers and limitations upon the others, is in large degree responsible for the prevailing immorality and unreasonableness, which, unless quickly conquered and rejected, will end by destroying all incentive to human effort to reach the highest type of accomplishment and of service. The result could only be calamitous for mankind as a whole.

There is not, there cannot be, and there should not be, any such thing as equality among men, save equality of opportunity and equality in respect to provision for social and economic security. Equality in any form other than these is a denial of the fundamental facts of human nature and of human life. Indeed, it is a characteristic not of life at all but of death. Of course, no man or woman must be trodden under foot or held to unrequited service in any form, but on the other hand there must be no artificial obstacles put in the way of him who has the capacity, the skill, the knowledge, and the opportunity to develop his powers to the utmost. In a world built upon clearly understood and clearly stated moral principles, liberty and true equality can and should exist side by side. Under no other circumstances can either liberty or true equality exist at all. Those who rise highest are necessarily few in number, and, therefore, it is against these that the gibes and jeers, the sneers and contempts, of the great multitude are so constantly stirred and directed. These exhibitions, let it be repeated time and again, are the outcome not of just criticism or of the application of any sound principle of morals or of social justice, but simply new evidence of abundant envy, hatred, and malice. The political and social order

may conceivably be disrupted and overturned by such forces as these, but it never can be reconstructed, reformed, and uplifted by them. They are to be gotten rid of at all hazards. Not long ago Sir James Barrie told the University of Edinburgh that "envy is the most corroding of the vices and also the greatest power in any land."

On this day of reflection and of looking forward, there is no more earnestly needed prayer than that of the Litany:

"From all blindness of heart; from pride, vainglory, and hypocrisy; from envy, hatred, and malice, and all uncharitableness, Good Lord, deliver us."

---

#### GROUND FOR HOPE

Some time ago events were taking place with great rapidity in Washington. Events which gave substantial ground for fear that radicalism would be enthroned as the dictator of medical matters in a short while. Any suggestions emanating from the American Medical Association were ignored. No committee of the American Medical Association was permitted to sit in on the consideration of matters pertaining to the medical care of the people of America. It is true that several individual members of the association participated in the deliberations, but they were selected by *the powers that be* in Washington without consultation with the American Medical Association.

Certain foundations with large amounts of money and a high salaried personnel were definitely dedicated to the purpose of forcing state medicine in the form of some compulsory health measure.

At the present moment some of the personnel of endowed institutions have been fired by the institutions; others are not quite as "cocky" as they were, and the public is gradually learning that these types of people can make a lot of publicity noise and extravagant promises, and on the basis of such promises obtain large powers and appropriations, and then fail to deliver in such an attractive way as their promises indicate.

These developments afford some ground

for hope that good sense and an appreciation of the principles that have made America and American medicine great may yet prevail.

---

THE MEDICAL PROFESSION AND THE TENNESSEE EMERGENCY RELIEF ADMINISTRATION

It has become necessary that the membership of the medical profession in Tennessee be informed with regard to events that have taken place in connection with the medical profession as it is affected by the Tennessee Emergency Relief Administration.

When the administration was first organized under Mr. C. C. Menzler, he very courteously called the headquarters office and requested that the medical association cooperate in the formation of plans, as quickly as possible, for the administration of medical services to the indigent on relief rolls. A group of the officers of the association was hurriedly assembled, and in cooperation with Mr. Menzler and his staff a tentative plan was drawn. Mr. Menzler was informed that every local society was autonomous; that the state association had no power to make an agreement that would bind local societies. It was recognized at the time that the plans were not satisfactory in many respects, but all concerned were compelled to draw the plans within specifications fixed by the relief administration at Washington.

Time and events proved that these plans were inadequate and unsatisfactory both to the relief administration in Tennessee and to the medical profession.

Numerous conferences were held with various representatives from time to time with a view to improving the provisions of the plan.

A conference of Southern relief agencies with representatives of the medical profession was arranged to be held at Biloxi, Miss., August, 1934. This was canceled by the authorities in Washington, so we were informed.

On October 30, 1934, Colonel W. L. Simpson, then administrator, addressed to the

secretary-editor the following communication:

"It is desirable that I have a conference with an official or officials of the Tennessee State Medical Association in order to determine what our medical policy will be for the coming year. Therefore, I am asking that you kindly put me in touch with the proper persons."

In response to this communication the president and secretary of the association, and several members of the Board of Trustees, were assembled in the office of Colonel Simpson. A frank discussion of the problems was had from the viewpoint of the medical profession and the relief administration. It resulted in the formation of a committee of the association to draft a revision of the plans then in effect, which, if approved by Colonel Simpson, would be submitted to Washington for approval.

The whole matter was approached in good faith. A spirit of interest and helpfulness was displayed at all times by the members of the association and by Colonel Simpson and his staff.

The work of drafting a plan was begun, but before it was completed Colonel Simpson was removed from office, and Judge Barton B. Brown was appointed his successor.

Some time before the meeting of the state association in April a rumor became widespread, and later was confirmed, to the effect that certain members of the medical profession in Nashville were in conference with Judge Brown on the matter of formulating plans for medical services to clients of the Tennessee Emergency Relief Administration. None of the persons in consultation were authorized to represent the medical profession in any such conferences. This fact was reported to the association by Dr. J. O. Manier in his presidential address and in his address to the House of Delegates. In addition he urged the House of Delegates to take action which would create a committee of the association and clothe it with the power to represent the doctors of Tennessee in their dealings with the relief administration.



The House of Delegates took the action requested, and a committee was created and clothed with power to represent the association as a whole in the matter of revising these plans. As soon as the committee was formed, Judge Brown was notified by letter dated April 23, 1935. The first paragraph of the letter was as follows:

"I am writing to advise you that the Tennessee State Medical Association at its recent meeting took action to form a committee and give it specific authority to deal with the relief administration in Tennessee with a view to the working out of a more satisfactory plan for the administration of medical services to federal relief clients in the state."

Receipt of this letter was not even acknowledged. In this letter the committee so far completed was named.

The following communication, dated May 10, was received on Saturday, May 11:

"Dr. J. F. Gallagher,  
Bennie-Dillon Building, Nashville.  
Dr. H. H. Shoulders,  
Doctors' Building, Nashville.  
Dr. Theodore Morford,  
Doctors' Building, Nashville.  
Dr. T. R. Ray,  
Shelbyville, Tennessee.

"Gentlemen:

"Please be advised that a meeting of the committee (selected by the Tennessee State Medical Association), which has been authorized to deal with the relief situation in Tennessee, is scheduled for Monday, May 13, at 3 P.M., in Room 320, Stahlman Building.

"We trust you will find it convenient to meet with us at that time.

"Very truly yours,

"(Signed) BARTON B. BROWN,  
*State Administrator.*"

The Board of Trustees was meeting May 12. It was brought out in the meeting that Judge Brown was in Washington. His home was contacted by phone, and that information confirmed. The matter was submitted to the Board of Trustees for suggestions. On advice of the Board of

Trustees the following communication was addressed to Judge Brown:

"May 13, 1935.

"Judge Barton B. Brown, State Administrator,

Tennessee Emergency Relief Administration,

Stahlman Building,  
Nashville, Tennessee.

"Dear Judge Brown:

"This acknowledges receipt of a memorandum dated May 10, 1935, advising us that a meeting of the committee selected by the Tennessee State Medical Association is scheduled for Monday, May 13, at 3 P.M., in Room 320, Stahlman Building.

"Through a news item our attention was called to the fact that you are in Washington. A telephone communication to your home reveals that you will be in Washington May 13. This fact, together with the fact that the committee has just been completed, leads us to request that you name another date for a conference with you, and that you give us at least three days' notice in advance in order that a full attendance of our committee may be present.

"The completed committee authorized and directed to treat with you the subject of medical care to relief clients of the Tennessee Emergency Relief Administration is as follows: H. H. Shoulders, chairman, Nashville; T. R. Ray, Shelbyville; Theodore Morford, Nashville; H. B. Everett, Memphis; M. S. Roberts, Knoxville.

"It is hoped that a meeting date can be arranged soon after your return to the city.

"Most respectfully yours,

"H. H. SHOULDERS,  
*Chairman.*"

Nothing more was heard from Judge Brown until a circular was received June 20 with attached plans. On receipt of these the secretary-editor addressed the following communication to Judge Brown:

"This acknowledges receipt of a letter from you dated June 20, together with a revised medical code to apply in Tennessee.

"Your letter appears to be a circular. There is nothing to indicate whether you want the committee of the state medical

association to consider the matter as a committee or whether you have addressed this to each individual doctor in the state. I will thank you to advise me on this point."

No reply to this has been received.

It is not our purpose to enter into a discussion of the merits or demerits of the plans circularized. It is our purpose to discuss the attitude displayed by the relief administration.

The offers of the medical profession in Tennessee and the spirit of cooperation displayed have been treated with utter disregard.

A majority of the work done for indigents on relief rolls by the medical profession of Tennessee has been done without charge, and doubtless will continue to be done without charge, while the high salaried officers, agents, et cetera, continue to display an autocratic dictatorial attitude toward the medical profession of Tennessee.

Insofar as we can see, the object of the policy followed by the administration is to tear down organized medicine and enter into an individual agreement with individual doctors on whatever basis he chooses. The attitude each individual doctor takes in the premises is a matter to be determined by his own conscience.

Whether Judge Brown has been directed in his course by improper influences or whether he elected to follow the course he has followed deliberately is not known and matters very little. Certainly nothing has been done to merit confidence and cooperation on the part of the medical profession of Tennessee. It serves very emphatically to portray what will happen when some money and power are placed in the hands of a bureau head insofar as medical services to the public are concerned.

#### THE COMMITTEE ON EDUCATION

At the last session of the House of Delegates, action was taken to amend the by-laws and vest the appointment of certain standing committees in the Board of Trustees instead of the president.

The House of Delegates appreciate the fact that this step was necessary for the most efficient functioning of committees.

One of the new committees of the association is the Committee on Education. Its function has to do with the education of doctors and the education of the public. At the present moment its functions are vital and the cooperation of the entire membership with the committee is also vital, for several reasons.

It has been charged that organized medicine has sought to destroy certain protections afforded by the State Department of Health. This was never true, and, as a matter of fact, this committee with the State Board of Health is now making plans by which all the indigent persons in the state may receive prophylactic inoculations free of charge, and, in addition, receive them at such an age that they will be of the greatest usefulness.

Each local society will receive communications from the committee at an early date concerning meetings to be held throughout the state for the purpose of acquainting the members with the plans and of perfecting the necessary organization for carrying them out.

We are bold to assert that no movement relating to public health has taken place in Tennessee in recent years that in any way approaches this movement in importance to the public.

The committee is also considering plans for postgraduate activities within local component societies. These plans will be perfected in a short while.

Broadly speaking, the object of organized medicine in Tennessee is to see to it that our membership is in position to render all these services efficiently and at a cost within the reach of the people.

## DEATHS

M. L. Bradley, Springfield, Vanderbilt University, School of Medicine, Nashville, 1889; aged 78; died June 26, following an illness of six months.

S. E. Parrott, Cordova, Memphis Hospital College, 1901; aged 61, died recently.



## LIST OF OFFICERS OF THE TENNESSEE STATE MEDICAL ASSOCIATION

President—Dr. John B. Steele, Chattanooga.  
 Vice President for East Tennessee—Dr. C. R. Thomas, Chattanooga.  
 Vice President for Middle Tennessee—Dr. J. W. Wilkes, Columbia.  
 Vice President for West Tennessee—Dr. N. S. Walker, Dyersburg.  
 Secretary—Editor—Dr. H. H. Shoulders.  
 Assistant Secretary—Editor—Dr. W. M. Hardy.

## TRUSTEES

Chairman and Treasurer—Dr. C. M. Hamilton, Doctors Building, Nashville.  
 Dr. Franklin B. Bogart, Medical Arts Building, Chattanooga.  
 Dr. W. L. Williamson, 915 Madison Avenue, Memphis.  
 Dr. J. O. Manier, Doctors Building, Nashville.  
 Dr. E. R. Zemp, Walnut Street, Knoxville.

## COUNCILORS

First District—Dr. L. E. Dyer, Greeneville.  
 Second District—Dr. S. R. Miller, Knoxville.

Third District—Dr. J. H. Revington, Chattanooga.  
 Fourth District—Dr. J. T. Moore, Algood.  
 Fifth District—Dr. John W. Sutton, Petersburg.  
 Sixth District—Dr. L. W. Edwards, Nashville.  
 Seventh District—Dr. C. D. Walton, Mt. Pleasant.  
 Eighth District—Dr. J. R. Thompson, Jackson.  
 Ninth District—Dr. E. H. Baird, Dyersburg.  
 Tenth District—Dr. W. B. Burns, Memphis.

Speaker of the House of Delegates—Dr. E. R. Zemp, Knoxville.

## Delegates to the American Medical Association—

Dr. E. G. Wood, Knoxville; East Tennessee.  
 Dr. H. H. Shoulders, Nashville; Middle Tennessee.  
 Dr. H. B. Everett, Memphis; West Tennessee.

## Alternates—

Dr. E. T. Newell, Chattanooga; East Tennessee.  
 Dr. J. O. Manier, Nashville; Middle Tennessee.  
 Dr. E. C. Ellett, Memphis; West Tennessee.

## OFFICERS OF COUNTY MEDICAL SOCIETIES FOR THE YEAR 1935

| COUNTY                                   | PRESIDENT                                                          | VICE PRESIDENT                                                                                                                       | SECRETARY-TREASURER                                                  |
|------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| Anderson                                 | Thomas Jennings, Clinton                                           | Edward Dickson, Coal Creek                                                                                                           | J. S. Hall, Clinton                                                  |
| Bedford                                  | W. T. Sharpe, Farmington                                           | Alfred Farrar, Shelbyville                                                                                                           | W. H. Avery, Shelbyville                                             |
| Blount                                   | C. C. Vinsant, Maryville                                           | L. C. Olin, Maryville                                                                                                                | H. A. Calloway, Maryville                                            |
| Bradley                                  | Vance H. Bell, Cleveland                                           | D. N. Arnold, Cleveland                                                                                                              | Wm. A. Garrett, Cleveland                                            |
| Campbell                                 | A. L. Lawson, Elk Valley                                           | G. M. Rogers, LaFollette                                                                                                             | F. J. Slemmons, Jellico                                              |
| Carroll                                  |                                                                    |                                                                                                                                      | J. H. Williams, McKenzie                                             |
| Carter                                   | E. T. Pearson, Elizabethton                                        | J. B. Shoun, Elizabethton                                                                                                            | E. L. Caudell, Elizabethton                                          |
| Chester, Henderson,<br>Decatur           | C. H. Johnston, Lexington                                          |                                                                                                                                      | L. C. Smith, Henderson                                               |
| Cocke                                    | J. A. P. Shields, Hartford                                         |                                                                                                                                      | J. E. Hampton, Newport                                               |
| Cumberland                               | E. W. Mitchell, Crossville                                         |                                                                                                                                      | V. L. Lewis, Crossville                                              |
| Davidson                                 | W. G. Kennon, Nashville                                            | H. S. Shoulders, Nashville                                                                                                           | J. P. Gilbert, Nashville                                             |
| Dickson                                  | L. F. Loggins, Charlotte                                           |                                                                                                                                      | R. P. Beasley, Dickson                                               |
| Dyer, Lake, and Crockett                 | E. H. Baird, Dyersburg                                             | P. E. Miller, Tigrett (Dyer)<br>R. C. Newkirk, Tiptonville (Lake)<br>J. O. McKinney, Friendship (Crockett)<br>L. D. McAuley, Oakland | C. L. Denton, Dyersburg                                              |
| Fayette and Hardeman                     | John Morris, Somerville                                            |                                                                                                                                      | A. Richards, Bolivar                                                 |
| Fentress                                 |                                                                    |                                                                                                                                      | J. P. Sloan, Jamestown                                               |
| Franklin                                 | W. F. Smith, Decherd                                               | A. P. Smith, Winchester                                                                                                              | John P. Grisard, Winchester                                          |
| Gibson                                   | P. D. Jones, Milan                                                 | L. H. Montgomery, Trenton                                                                                                            | F. L. Roberts, Trenton                                               |
| Giles                                    | Joe B. Wright, Lynnville                                           | R. E. Warren, Pulaski                                                                                                                | T. F. Booth, Pulaski                                                 |
| Greene                                   | L. E. Dyer, Greeneville                                            | M. A. Blanton, Mosheim                                                                                                               | C. P. Fox, Jr., Greeneville                                          |
| Grundy                                   | D. H. Bryan, Monteagle                                             | O. H. Clements, Palmer                                                                                                               | T. F. Taylor, Monteagle                                              |
| Hamblen                                  | P. L. Henderson, Morristown                                        | P. L. Brock, Morristown                                                                                                              | J. F. Campbell, Morristown                                           |
| Hamilton                                 | James L. Bibb, Chattanooga                                         | D. N. Williams, Chattanooga                                                                                                          | W. J. Sheridan, Chattanooga                                          |
| Hardin, Lawrence, Lewis,<br>Perry, Wayne | G. N. Springer, Hohenwald                                          |                                                                                                                                      | C. C. Stockard, Lawrenceburg                                         |
| Haywood                                  | W. D. Poston, Brownsville                                          | A. H. Sorrelle, Brownsville                                                                                                          | Roy M. Lanier, Brownsville                                           |
| Henry                                    | A. F. Paschall, Puryear                                            | Elroy Scruggs, Paris                                                                                                                 | R. Graham Fish, Paris                                                |
| Hickman                                  | L. F. Pritchard, Only                                              |                                                                                                                                      | W. K. Edwards, Centerville                                           |
| Humphreys                                |                                                                    |                                                                                                                                      | W. W. Slayden, Waverly                                               |
| Jackson                                  | J. D. Quarles, Whiteleyville                                       | R. C. Gaw, Gainesboro                                                                                                                | F. B. Clark, Gainesboro                                              |
| Knox                                     | Eugene Abercrombie, Knoxville                                      | W. F. Christenberry, Knoxville                                                                                                       | Jesse C. Hill, Knoxville                                             |
| Lauderdale                               | J. L. Dunnivant, Ripley                                            | T. E. Miller, Ripley                                                                                                                 | J. R. Lewis, Ripley                                                  |
| Macon                                    | D. D. Howser, Lafayette                                            |                                                                                                                                      | J. Y. Freeman, Lafayette                                             |
| Madison                                  |                                                                    |                                                                                                                                      | S. M. Herron, Jackson                                                |
| Maury                                    | E. M. Ragsdale, Columbia                                           | D. B. Andrews, Columbia                                                                                                              | C. D. Walton, Mt. Pleasant                                           |
| McMinn                                   | R. W. Epperson, Athens                                             | S. B. McClary, Sr., Etowah                                                                                                           | L. A. Brendle, Englewood                                             |
| McNairy                                  | John R. Smith, Selmer                                              | G. B. Curry, Selmer                                                                                                                  | H. C. Sanders, Selmer                                                |
| Monroe                                   | T. M. Roberts, Sweetwater                                          |                                                                                                                                      | W. J. Cameron, Sweetwater                                            |
| Montgomery                               |                                                                    |                                                                                                                                      | Paul E. Wilson, Clarksville                                          |
| Obion                                    |                                                                    |                                                                                                                                      | Frank Kimzey, Union City                                             |
| Overton                                  |                                                                    |                                                                                                                                      | A. B. Qualls, Livingston                                             |
| Polk                                     | H. P. Hyde, Copperhill                                             | W. Y. Gilliam, Copperhill                                                                                                            | F. O. Geisler, Isabella                                              |
| Putnam                                   | Z. L. Shipley, Cookeville                                          | J. Fred Terry, Cookeville                                                                                                            | Thurman Shipley, Cookeville                                          |
| Roane                                    | L. A. Killefer, Harriman                                           | R. F. Register, Rockwood                                                                                                             | W. W. Hill, Harriman                                                 |
| Robertson                                | W. Foster Fyke, Springfield                                        |                                                                                                                                      | W. S. Rude, Ridgetop                                                 |
| Rutherford                               | J. D. Hall, Readyville                                             |                                                                                                                                      | J. A. Scott, Murfreesboro                                            |
| Scott                                    |                                                                    |                                                                                                                                      | D. M. Woodward, Winona                                               |
| Sevier                                   | O. H. Yarberry, Sevierville                                        |                                                                                                                                      | C. P. Wilson, Sevierville                                            |
| Shelby                                   | Jas. B. Stanford, Memphis<br>R. F. Mason, Memphis, President-Elect | R. G. Henderson, Memphis                                                                                                             | A. F. Cooper, Memphis, Secretary<br>J. J. Hobson, Memphis, Treasurer |
| Smith                                    | R. E. Key, Monoville                                               | Rhea E. Garrett, Dixon Springs                                                                                                       | Thayer S. Wilson, Gordonsville                                       |
| Sullivan and Johnson                     | W. R. Rogers, Bristol, Va.                                         | L. C. Cox, Kingsport (Sullivan)<br>J. C. Hutchenson, Crandall (Johnson)                                                              | Arthur Hooks, Bristol, Tenn.                                         |
| Sumner                                   | J. J. Gwin, Hartsville                                             | R. N. Buchanan, Hendersonville                                                                                                       | Homer Reese, Gallatin                                                |
| Tipton                                   | A. J. Butler, Covington                                            | J. J. Fleming, Atoka                                                                                                                 | H. C. Currie, Covington                                              |
| Warren                                   |                                                                    |                                                                                                                                      | John S. Harris, McMinnville                                          |
| Washington                               | J. W. Wallace, Johnson City                                        | E. T. Brading, Johnson City                                                                                                          | Carroll H. Long, Johnson City                                        |
| Weakley                                  | R. W. Brandon, Martin                                              | H. G. Edmonson, Martin                                                                                                               | P. W. Wilson, Dresden                                                |
| White                                    | S. E. Gaines, Sparta                                               | Vernon Hutton, Ravenscroft                                                                                                           | A. F. Richards, Sparta                                               |
| Williamson                               | T. C. Rice, Franklin                                               | R. H. Hutchison, Franklin                                                                                                            | K. S. Howlett, Sr., Franklin                                         |
| Wilson                                   | J. L. Ames, Lebanon                                                | C. C. Young, Alexandria                                                                                                              | S. B. McFarland, Lebanon                                             |

## STANDING COMMITTEES

## COMMITTEE ON SCIENTIFIC WORK

H. H. Shoulders, Chairman, Nashville  
 A. F. Cooper, Memphis  
 W. J. Sheridan, Chattanooga  
 Jesse C. Hill, Knoxville

COMMITTEE ON PUBLIC POLICY AND  
LEGISLATION

Battle Malone, Memphis (five years)  
 L. W. Edwards, Chairman, Nashville (four years)  
 Tom Barry, Knoxville (three years)  
 T. R. Ray, Shelbyville (two years)  
 Robert Sullivan, Nashville (one year)

## COMMITTEE ON EDUCATION

O. S. Warr, Chairman, Memphis (three years)  
 R. B. Wood, Knoxville (three years)  
 W. G. Kennon, Nashville (two years)  
 J. Marsh Frere, Chattanooga (two years)  
 W. O. Baird, Henderson (one year)  
 J. M. Lee, Nashville (one year)

## LIAISON COMMITTEE

Hiram A. Laws, Chattanooga (four years)  
 Tom Mitchell, Memphis (three years)  
 J. L. Raulston, Knoxville (two years)  
 W. C. Dixon, Chairman, Nashville (one year)  
 W. P. Wood, Knoxville (five years)

STATE TUBERCULOSIS HOSPITAL  
COMMISSION

W. S. Rude, Chairman, Ridgetop  
 O. N. Bryan, Nashville  
 C. M. Oberschmidt, Memphis  
 J. L. Hamilton, Chattanooga

## HOSPITAL COMMITTEE

D. R. Pickens, Chairman, Nashville  
 E. H. Baird, Dyersburg  
 B. L. Jacobs, Chattanooga  
 Kyle Copenhaver, Knoxville  
 J. A. McIntosh, Memphis  
 Lee Gibson, Johnson City

ADVISORY COMMITTEE TO THE WOMAN'S  
AUXILIARY

Oliver W. Hill, Knoxville  
 Matt Murfree, Murfreesboro  
 W. W. Campbell, Memphis

## WOMAN'S AUXILIARY

President-----Mrs. R. G. Reaves  
 Knoxville

President-Elect-----Mrs. Theodore Morford  
 Nashville

Press and Publicity-----Mrs. W. O. Floyd  
 Nashville

## HAIL, SUMMER!

The months have passed and we come again to a season of auxiliary relaxation. All over the state plans are being made for various outings. What a joy to reminisce the past year's work over a picnic plate in some cool spot, or while enjoying a vacation at the beach, in the mountains, or wherever our purse strings may lead us! To each and every one we wish a pleasant vacation.

## SUMMER ROUND-UP OF COUNTY AUXILIARIES

*Davidson County*

Mrs. W. C. Bilbro, Jr., President

The Woman's Auxiliary to the Nashville Academy of Medicine and Davidson County Medical Society was seen out on Stone's River recently enjoying a delightful picnic barbecue. Mrs. Bilbro, assisted by her officers and chairmen, was dispensing the hospitality in her usual capable manner.

The auxiliary certainly owes a debt of gratitude to Dr. and Mrs. W. W. Wilkerson, Jr., for the happy privilege of meeting each year at Camp Buffalo Gap.

*Rutherford County*

Mrs. Matt Murfree, President

Dr. and Mrs. J. F. Adams are soon to entertain the Rutherford County auxiliary at a picnic at their farm near Murfreesboro. Participating in this delightful affair will be both members of the academy and the auxiliary.

*Knox County*

Mrs. H. E. Christenberry, President

Dr. and Mrs. E. H. Ford were hosts at a joint picnic of the Knox County Medical Society and the Woman's Auxiliary, Friday evening, June 21, at their home at Top-



side. A basket dinner was served at sunset, after which a recreational director provided many games for the amusement of the guests.

One hundred guests enjoyed this delightful outing.

#### ECHOES FROM THE NATIONAL CONVENTION

Climaxing one of the most successful meetings ever held by the Woman's Auxiliary to the American Medical Association, Mrs. Robert W. Tomlinson, president, closed the thirteenth annual meeting at Atlantic City, Thursday, June 13. Adding to the interest of the meetings of the American Medical Association and the Woman's Auxiliary was the signal honor of having as joint host the Canadian Medical Society, of which there were many representatives present.

Mrs. R. N. Herbert, of Nashville, was installed as the new president of the auxiliary. Mrs. Herbert served the organization as *Hygeia* chairman for several years. Mrs. T. G. Pollard represented Tennessee at the convention, having been appointed delegate by Mrs. Reaves.

#### PERSONAL ITEMS

Mrs. Willis Campbell, of Memphis, motored to Atlantic City for the A. M. A. meeting. Mrs. Campbell served as Tennessee's able president for the year 1934.

Other visitors to Atlantic City included: Mrs. George Carpenter, Mrs. David Haley, Mrs. Fowler Hollabaugh, Mrs. Charles Hill, and Mrs. James Lester, of Nashville.

Mrs. R. G. Reaves is enjoying an extensive stay in Mexico City.

Mrs. B. F. Byrd, accompanied by Dr. and B. F. Byrd, Jr., has returned from Brookhaven, Miss., where she joined her family for a reunion at their Brookhaven home.

### NEWS NOTES AND COMMENTS

We are reproducing two paragraphs clipped from the weekly letter to members of the Knox County Medical Society.

The advice is so good that we believe it should be shared with all members of the state association.

#### ETHICS

The secretary's office is somewhat of a clearing house for the members of the profession who feel that some brother has been unethical toward him. The complaints are on the increase. Let all of us be more careful. Many acts that look unethical are misunderstandings or things that have been misrepresented.

When some other doctor gets one of my patients, I feel that the patient would rather have the other fellow so I do not worry. I have two or three patients I wish some one else would get. Don't condemn a doctor until you know, and then go to him in a friendly way.

JESSE C. HILL, *Secretary*,  
Knox County Medical Society.

Dr. J. A. P. Shields, of Hartford, has accepted a position at Rainbow Springs, North Carolina.

Cannon, Smith, and Rutherford County doctors and their wives were recently guests at a picnic given by Dr. and Mrs. J. F. Adams, of Woodbury.

Those interested in the meeting may obtain full particulars of the Latin-American Congress of Physical Therapy, X-Ray, and Radium by writing Dr. Cassius Lopez de Victoria, executive director, 1013 Lexington Avenue, New York City. The congress meets in Mexico City, August 29-September 5.

We have recently received a list of motion pictures made available by the Mead Johnson Company. Any of the films may be borrowed without charge for showing by physicians to medical societies, medical students, hospital groups, etc.

Secretaries of the county societies will do well to write for a list of these instructive pictures.

### MEDICAL SOCIETIES

*Benton, Carroll, Henry, Weakley Counties:*

On June 12, the program was given by members of the society. Dr. George Boone, of Paris, read a paper on "Hand Infec-

tions." Dr. Edmondston conducted a round-table discussion of the subject. Two other papers were scheduled, but the writers were not able to be present.

An invitation was extended to the society to meet at Huntingdon, July 9, as luncheon guests of Drs. Roy Douglas and V. E. Massey.

#### *Dyer, Lake, and Crockett Counties:*

Dyersburg— July 3, 1935.

The Dyer, Lake, and Crockett County Medical Society met in regular session with twenty-three members present.

#### Scientific Program:

1. "Case Report — Blastomycosis," Dr. W. P. Watson, Dyersburg.
2. "Common Nose and Throat Pathology," Dr. J. D. Brewer, Dyersburg.
3. "Medical Ethics," Dr. C. A. Turner, Dyersburg.
4. "Letting Nature Take Its Course," Mr. G. O. Wilson, Dyersburg.

Following adjournment of the regular session hot pitch and cold beer held sway until a late hour.

Motion carried to omit regular meetings in August and September.

C. L. DENTON, *Secretary*.

#### *Hamilton County:*

The meeting will be held August 1, with papers by Drs. Franklin Johnson and John Steele. Subjects are "Appendicitis" and "Diastolic Blood Pressure," respectively.

#### *Hardin, Lawrence, Lewis, Perry, and Wayne Counties:*

On June 25, the society held its meeting at the Shiloh National Park. Sixty-five doctors were present at the scientific meetings. A picnic dinner was served by the wives and friends of the members of the society. The program was as follows:

"Acute Surgical Abdomen," by Dr. Charles F. Webb, Jackson. Discussion opened by Dr. Jere Crook, Jackson.

"Prenatal Care—Conduct of Labor and Puerperium," by Dr. James R. Reinberger, Memphis.

"A Consideration of Appendicitis in Pregnancy," by Dr. J. L. McGehee, Memphis. Discussion opened by Dr. J. H. Tilley, Lawrenceburg.

#### *Knox County:*

June 11: Dr. Hugh Reaves, "The X-ray as an Aid to the General Practitioner." Dr. H. H. McCampbell opened the discussion.

June 18: Dr. J. G. Eblen, "The Treatment of Empyema in Children." Discussionists, Drs. O. W. Hill, Joe T. Smith, Beulah Kittrell, and W. R. Cross.

June 25: Miss Ruth Spears, "The Science of Lightning."

June 26-27: T.V.A. Medical Society and Postgraduate Assembly.

## ABSTRACTS OF CURRENT LITERATURE

### ANESTHESIA

By HUGH BARR, M.D.  
Medical Arts Building, Nashville

"U. S. P. Ether from Large Drums and Ether from Small Cans Labeled 'For Anesthesia': Comparison in Seven Hundred Two Operations." Ella M. Hediger, M.D., and Harry Gold, M.D. *Journal A. M. A.*, June 22, 1935.

Ether has always been considered unfit for anesthesia after twenty-four hours had elapsed since the container had been opened. The authors claim that this belief is unwarranted by chemical tests and experience of anesthetists.

Experiments were conducted in seven hundred two operations for the relief of a wide range of surgical conditions, using U.S.P. ether from large drums and ether from cans labeled "for anesthesia" about equally divided. The anesthetists were ignorant of the source, and the results were found to be indistinguishable.

In conclusion, the authors state the deterioration was not detected even after U.S.P. ether had been opened for sixty-eight days. Daily tests were performed, and the drums were kept stoppered after the daily amount of ether was withdrawn. They also conclude that U.S.P. ether from large drums produces as satisfactory anesthesia as ether from cans labeled "for anesthesia," in respect to quantity required, unsatisfactory anesthesia, vomiting, and postoperative complications.

### DERMATOLOGY

By E. E. BROWN, M.D.  
Doctors Building, Nashville

"Acne and Furunculosis. Preliminary Report of Treatment with Physiologic Solution of Sodium Chloride Locally or by Intravenous Injection." Herman Goodman, M.D., New York, N. Y. *Archives of Dermatology and Syphilology*, June, 1935.

For five or six years the author studied the re-



sults of chemical analyses of the blood of patients reporting to the Outpatient Department of the Stuyvesant Square Hospital.

It was disclosed by a tabulation of these analyses that as the average sugar content decreases the salt content increases. Although the relationship is not absolute it is fairly constant and the converse can be supported. As the average salt content of the blood increases the sugar content decreases. He offers no explanation for this.

Physiologic solution of sodium chloride has been introduced intravenously for the relief of pustular skin eruptions due to the ingestion of bromide or iodide. For the past three years, an experimental study has been made of the effect of intravenous and local injection of physiologic solution of sodium chloride for the relief of pustular acne and furunculosis. One case is reported in which very gratifying results were obtained. Since this case was reported the author has treated several hundred patients with pustular conditions of the skin by the use of physiologic solution of sodium chloride administered intravenously and locally into the pustules. The pustular elements have always receded under this type of treatment. The large pus pockets of the condition sometimes called cystic acne have cleared and remained clear. Furuncles are likewise amenable to this form of therapy. It seems to make no difference whether the furuncle is in the frank pustular stage or in the stage before ripening.

In the beginning, all patients with acne were treated intravenously. The first injection was 100 c.c. This was increased by 50 c.c. until a maximum of 250 c.c. was reached. A few patients were given 300 c.c. There were no ill effects. The injections were carried out by the gravity method. When the lesions of papular acne did not respond, the administration of physiologic solution of sodium chloride was limited to patients with frank pustular lesions. If there were only one or two pus pockets, the solution was injected locally, directly into the mass of pus as well as around the inflammatory base.

### OPHTHALMOLOGY

By ROBERT J. WARNER, M.D.  
Doctors Building, Nashville

"Action of Epinephrin on the Normal Human Eye. Use of the Stronger Solutions for Instillation." S. C. Howell. *American Journal of Ophthalmology*, June, 1935.

A two per cent solution of synthetic epinephrin was instilled four times at ten-minute intervals into one eye each of fifty men and fifty women with normal eyes. The size of the pupil and tension were recorded after one hour and after twenty-

four hours. The records given in a table show that in fifty-eight per cent there was no change in tension after one hour, but a distinct drop at the end of twenty-four hours, the average change being 6.2 millimeters. In six instances the tension was unchanged, and in three a slight rise preceded the fall. No relation was found between reduction of tension and age or sex. A slight decrease in tension may be found in the opposite eye. Mydriasis occurred within one hour in ninety-eight per cent and returned to normal in twenty-four hours in fifty-four per cent. The average increase in size was 4.6 millimeters. The author advocates epinephrin for examination of the fundus and media in cases in which atropine is contra-indicated.

"The Refractive Error of Twins." F. W. Law. *American Journal of Ophthalmology*, June, 1935.

Eight identical and three dissimilar twins are discussed. Of the eight identical cases four were squinters. The numbers are admittedly small, but it is suggested that these conclusions may be drawn: (1) Pairs of identical twins by no means always have identical refraction. (2) The refraction in identical twins is alike at least twice as often as in brothers and sisters of the same family born at different times. (3) The incidence of strabismus is higher in twins than in sibs of different ages. It occurs sometimes in only one member of the pair, but far more commonly in both members, and then is of the same nature and direction in both.

### PEDIATRICS

By JOHN M. LEE, M.D.  
Doctors Building, Nashville

"Prophylaxis of Simple Anemia in Infancy with Iron and Copper. Effect on Hemoglobin, Weight, and Resistance to Infection." S. J. Usher, M.D., P. N. MacDermot, M.D., and E. Lozinski, M.D., Montreal, Canada. *American Journal of Diseases of Children*, March, 1935.

Numerous investigators have pointed out that in all normal infants an anemia exists during the latter half of the first year and throughout the second year of life. This is not prevented by the early addition to the diet of vegetables, fruits, and cereals, nor is there evidence that it is due to rickets or lack of vitamins.

The authors studied 233 infants in an institution to determine if (a) any ill health resulted from this simple anemia, and if (b) any improvement in health could be obtained or resistance to infection increased by the addition to the diet of an iron salt, either with or without copper.

It was found that the high hemoglobin value at birth fell sharply to about 12.2 grams at the age of from two to three months; it rose slightly at

five months, then fell slowly to an average of 11.2 grams at one year. If from one and one-half to three grains of ferric glycerophosphate were given daily, at one year the hemoglobin was fifteen per cent higher than the controls. The addition daily of 1/60 to 1/32 grain of copper to the iron gave a hemoglobin value of nineteen per cent higher than the control group.

At from eight to ten and from twelve to fourteen months of age the average weight of the group receiving iron was slightly less than that of the control group, while those receiving copper weighed eight to twelve ounces more.

The children receiving iron showed only a slightly decreased incidence and severity of infection over the untreated group, while those receiving iron and copper showed a marked advantage.

There was a slight decrease in the mortality rate of the patients receiving iron over those not so treated. Those given copper showed a marked decrease in mortality rate, this being especially true in those having pertussis.

In those patients that came to autopsy from all groups, no relationship could be demonstrated between the ages and the amount of iron and copper per kilogram of liver, or between the age and the total amount of iron present in the liver.

### SURGERY—GENERAL AND ABDOMINAL

By BATTLE MALONE, II, M.D.  
1400 Monroe Avenue, Memphis

"Hyperparathyroidism. Clinical Diagnosis and the Operative Technique of Hyperparathyroidectomy." Frank H. Lahey, M.D., F.A.C.S., and G. E. Haggart, M.D., F.A.C.S., Boston, Massachusetts. *Surgery, Gynecology, and Obstetrics*, Volume 60, June, 1935.

Mandl, in 1926, performed the first operation to remove an adenoma of the parathyroid for relief of osteitis fibrosis cystica. This patient was improved for six years. In 1932 there was a return of the original symptoms, which did not disappear after a second operation, subtotal thyroidectomy with removal of two normal parathyroids. Keinbock believes this case was one of Padgett's disease of the bones, with the unusual complication of an adenoma of the parathyroid.

The diagnosis of hyperparathyroidism depends primarily on (1) an analysis of the chemical findings and (2) a careful survey of the roentgenograms of the skeleton and also of the kidneys for presence or absence of calculi.

Classification: (1) Classical — the osteitis fibrosis cystica of von Recklinghausen. (2) Hyperparathyroidism with osteoporosis. Here the decalcification is not so advanced. (3) Cases in which renal pathology is significant: (a) calculi in the renal pelvis; (b) calculi in the renal tubules;

(c) precipitation of calcium phosphate in the kidney as one of several organs.

Clinical aspects: The majority of cases occur in females between thirty and fifty years of age. Pain in the back or extremities is the major initial symptom. Also there may be weakness and localized or general bone tenderness. There is an increased ratio of calcium in the urine to the total amount of calcium excreted.

Blood chemistry analysis reveals elevated calcium and relatively low phosphorus. In a majority of cases the blood calcium is above 12 milligrams and phosphorus below 2.5 milligrams. The blood phosphatase is increased.

X-ray findings: (1) In relatively early cases there is a diffuse osteoporosis. The bone exhibits a finely mottled granular appearance, or there may be a pronounced general demineralization of the bone. In more advanced cases there is cyst formation and thinning of the cortex of the long bones. (2) In long-standing cases bone deformity is present, such as kyphosis of the spine, deformity of the ribs, wedge-shaped pelvis, and spontaneous fractures.

In some cases failure to find parathyroid adenomata is due to an atypical location of the parathyroid, hence it is necessary to know the abnormal as well as the normal locations. Instead of a parathyroid adenoma there may be a hyperplasia of all the parathyroids. It is, therefore, sometimes necessary to call in the pathologists for opinions on frozen sections. First, as to whether removed specimens are or are not parathyroids, and, second, whether or not there is a hyperplasia. The parathyroid most easy to distinguish has a brownish color and the shape of a miniature lima bean. When the posterior surface of the thyroid is sprinkled with fat, finding the parathyroid is much more difficult.

The two most constant points at which the authors found the parathyroid bodies were on the back of the thyroid glands—close to the point at which the inferior thyroid artery enters the gland, and below the exit of the middle and lower thyroid vein—and on the posterior lateral aspect of the upper pole of the thyroid, where it rests against the laryngeal cartilage. Some of the atypical locations are in the mediastinum, on the side of the thyroid gland, in the bundle of vessels entering the upper pole, in the groove between the trachea and the esophagus, well away from the gland out on the trunk of the inferior thyroid artery before it has divided, and within the substance of the gland itself.

As for the operation, adequate exposure is essential. The prethyroid muscles are severed between clamps, and the middle thyroid veins are ligated and severed. The lateral border of the thyroid gland is then grasped with the thyroid grasping forceps, lifted up, and rotated inward. The inferior thyroid artery is completely demonstrated,



and the back of the gland is inspected for a tumor body on the gland. It usually appears as a pale white globular mass. On removal they have a glistening covering entirely surrounding the removed structure. Should no tumor be found, the inferior thyroid artery is dissected up to its entrance into the gland, but in doing this the recurrent laryngeal nerve must be located to avoid injury to it. Then in turn a search is made along the superior thyroid artery, the upper pole, the groove between the trachea and the esophagus, and finally the gland palpated for an intrathyroid parathyroid. Should postoperative tetany develop, it is controlled with parathormone, viosterol, and calcium lactate.

The authors report five cases in which operation was done with either complete relief or marked amelioration of symptoms.

### UROLOGY

By TOM R. BARRY, M.D., F.A.C.S.  
Medical Building, Knoxville

"A New Acid Medication in the Treatment of Bacilluria." Crance, A. M., and Maloney, F. W. *Journal of Urology*, Volume 33, No. 6.

In the aerobacter type of bacillus coli infections,

the ketogenic diet has been a failure, while in escherichia type this diet is helpful. Objections to the ketogenic diet (hospitalization, expense, and patient's refusal to accept the diet) lead the authors to try other methods.

Using nitrohydrochloric acid (not dilute nitrohydrochloric) in 10-minim doses four times daily, wonderful results have been obtained in bacillus coli infections of the urinary tract. Five cases are reported in detail.

They feel that it is the strength of the acid in the urine rather than any agent such as betaoxybutyric acid that renders the urine sterile.

Determination of the different types of bacillus coli is important, and the technique is discussed.

They also emphasize the need for complete urological examination before instituting treatment because in the presence of stones, poor functioning kidneys, etc., no results will be had. Ureteral stricture must be corrected.

They conclude that: First, the pH of the urine may be reduced to five or below in less time than by ketogenic diet. Second, it is harmless to the kidney. Third, treatment should be continued for one week after the urine becomes sterile.

### BUY REAL ESTATE

#### *The Safest Investment*

We have all kinds of investment property—homes, acreage tracts, and farms for sale.

*We invite sale and rental listings*

**MAX BENZ & CO.**

210 Capitol Blvd. Nashville, Tennessee  
Telephone 6-3358

### THE LITTERER LABORATORIES

MANUFACTURERS OF ANTI-RABIC  
VIRUS AND OTHER VACCINES

Telephone 6-5932 532 Doctors Building

NASHVILLE, TENNESSEE



## Grace Lutheran Sanatorium FOR TUBERCULOSIS

SAN ANTONIO, TEXAS

**A**DMITS patients irrespective of religion or creed. An attractive institution in beautiful San Antonio. Climate unexcelled the year round for treatment of tuberculosis. Private rooms with bath and sleeping porch; individual cottages; high-class accommodations; Radiographic and Fluoroscopic service. Every room and cottage equipped with radio.

#### MODERATE RATES

For booklet and information address

REV. PAUL F. HEIN, D. D., Superintendent  
P. O. Box 214 San Antonio, Texas

# THE JOURNAL

OF THE

## TENNESSEE STATE MEDICAL ASSOCIATION

DEVOTED TO THE INTERESTS OF THE MEDICAL PROFESSION OF TENNESSEE

ISSUED MONTHLY, Under Direction of the Trustees

H. H. SHOULDERS, M.D., Secretary and Editor

W. M. HARDY, M.D., Asst. Secretary-Editor

OFFICE OF PUBLICATION, 510 DOCTORS BUILDING, NASHVILLE, TENNESSEE

Volume XXVIII

AUGUST, 1935

No. 8

### PROCEEDINGS OF THE HOUSE OF DELEGATES OF THE TENNESSEE STATE MEDICAL ASSOCIATION, NOEL HOTEL, NASHVILLE, TENNESSEE

APRIL 9, 10, 11, 1935

TUESDAY, APRIL 9, 1935, AT 2:00 P.M.

The meeting was called to order by the speaker, Dr. E. R. Zemp, at 2:10 P.M. A roll call of the certified delegates was ordered. This roll was called by the secretary.

The speaker announced that the roll thus called, together with the officers and ex-presidents at the meeting, would constitute the roll call of the House for the transaction of business.

The first order of business was the reading of the minutes of the previous meeting.

It was announced by the secretary that the minutes had been published in the December issue of the JOURNAL.

Dr. H. B. Everett moved that the minutes be adopted as published. The motion was seconded by Dr. Hiram Laws, put to a vote, and carried.

The speaker then appointed the following reference committees:

*Credentials*—Dr. Ralph Monger, Knoxville; Dr. C. C. Stockard, Lawrenceburg; Dr. W. L. Williamson, Memphis.

*Report of Officers*—Dr. R. P. Wood, Knoxville; Dr. Robert Sullivan, Nashville; Dr. Roy Douglas, Huntingdon.

*Report of Committees*—Dr. J. C. Pennington, Nashville; Dr. Hiram Laws, Chattanooga; Dr. J. D. Brewer, Dyersburg.

*Resolutions*—Dr. R. H. Newman, Knoxville; Dr. J. H. Revington, Chattanooga; Dr. J. C. Ayres, Memphis.

*Amendments of Constitution and By-Laws*—Dr. L. W. Edwards, Nashville; Dr. M. S. Roberts, Knoxville; Dr. J. R. Thompson, Jackson.

A recess of five minutes was taken in order to allow the delegates from each grand division of the state to form a nominating committee. On re-assembling the following were announced as members of the nominating committee from each grand division of the state:

*East Tennessee*—Dr. R. H. Newman, Knoxville; Dr. Hiram Laws, Chattanooga; Dr. S. J. Sullivan, Cleveland.

*Middle Tennessee*—Dr. R. E. Lee Smith, Doyle; Dr. John S. Freeman, Springfield; Dr. C. M. Hamilton, Nashville.

*West Tennessee*—Dr. J. A. McIntosh, Memphis; Dr. John Jackson, Dyer; Dr. Jack Thompson, Jackson.

#### REPORTS OF OFFICERS

The report of the treasurer was called for. Dr. C. M. Hamilton, the treasurer, filed an auditor's report as constituting the report of the treasurer for the calendar year 1934.

#### REPORT OF AUDIT FOR YEAR ENDED DECEMBER 31, 1934

*To the Chairman and Board of Directors, Tennessee State Medical Association, Nashville, Tennessee.*

GENTLEMEN:

Pursuant to engagement we have made an audit of the books and records of the Tennessee State Medical Association, Nashville, Tennessee, for the year ended December 31, 1934.

The results of our investigation are presented in the accompanying Comments and on the Exhibit and Schedules designated as follows:

*Exhibit "A"—Statement of Receipts and Disbursements for the Year Ended December 31, 1934.*

Schedule A-1—Cash in Banks as of December 31, 1934.

Schedule A-2—Statement of Receipts by Months for the Year Ended December 31, 1934.

Schedule A-3—Statement of Medical Defense Fund for the Year Ended December 31, 1934.



Schedule A-4—Statement of General Fund for the  
Year Ended December 31, 1934.

Schedule A-5—Statement of Investment Account  
as of December 31, 1934.

### Comments

Cash in banks, \$850.62. The details of the items comprising this amount are presented on Schedule A-1. All receipts appearing in the Receipts Register were traced into the depositories or accounted for. Cancelled checks were examined, signatures and endorsements scrutinized, and amounts and payees compared and found to be in agreement with the Cash Disbursement Register. The amount was further verified by reconciliations of the statements as rendered by the banks with the Association's records.

Investments, \$9,047.64. This item shown in detail on Schedule A-5 represents \$10,000.00 face value 6 per cent First Mortgage Real Estate Notes, less payments on principal. These notes were examined at the American National Bank where they are deposited for safekeeping.

A Fire Insurance Policy of \$500.00 on Office Furniture and Fixtures and a Fidelity Bond of \$10,000.00 on the Treasurer, Dr. C. M. Hamilton, were in effect on December 31, 1934.

Advertising Accounts Receivable amounted to \$624.81. Several of the items comprising this amount are doubtful of collection.

Attention is directed to Schedules A-3 and A-4, statements of the Medical Defense and General Funds, respectively, on which are reflected Accounts Payable of \$9.00 for the Medical Defense Fund and \$437.05 for the General Fund.

Twelve issues of the MEDICAL JOURNAL were printed and distributed during the year, the costs of which are shown on Schedule A-4.

Respectfully submitted,

OSBORN & DUNCAN.

By W. M. DUNCAN, C. P. A.

Member American Institute of Accountants.

April 3, 1935.

### EXHIBIT "A"

#### Statement of Receipts and Disbursements for the Year Ended December 31, 1934

| RECEIPTS                                  |                    |
|-------------------------------------------|--------------------|
| Dues                                      | \$6,271.00         |
| Medical Defense, Schedule A-3             | 709.05             |
| Advertising                               | 3,596.92           |
| Interest on Investments                   | 451.47             |
| Payments on Principal of Investments      | 668.57             |
| Miscellaneous                             | 523.60             |
| <b>Total Receipts</b>                     | <b>\$12,220.61</b> |
| DISBURSEMENTS                             |                    |
| Medical Defense, Schedule A-3             | \$ 696.05          |
| Medical Journal, Schedule A-4             | 3,789.94           |
| Convention                                | 748.71             |
| Salaries                                  | 4,950.00           |
| General Expense and Other Disbursements   | 1,570.07           |
| Federal Check Tax                         | 3.40               |
| <b>Total Disbursements</b>                | <b>\$11,758.17</b> |
| <b>Excess Receipts Over Disbursements</b> | <b>\$462.44</b>    |

Represented by:  
General Fund Balance (Deficit)  
1-1-34 Corrected (334.72)  
Medical Defense Fund Balance,  
1-1-34 722.90

Balance in Banks, 1-1-34 \$ 388.18  
Balance in Banks, 12-31-34, Schedule A-1 850.62

Increase in Cash Balances in Banks \$462.44

### SCHEDULE A-1

#### Cash in Banks as at December 31, 1934

Balance American National Bank, Per Statement \$ 66.16  
Balance Third National Bank, Per Statement \$921.96  
Less Outstanding Checks:

| No. | Amt.    |        |
|-----|---------|--------|
| 156 | \$75.00 |        |
| 157 | 62.50   | 137.50 |

\$784.46

Balance, per Books, Exhibit "A" \$850.62

### SCHEDULE A-2

#### Statement of Receipts by Months for the Year Ended December 31, 1934

| Month         | Total              | Dues           | Medical Defense | Advertising       | Interest on Investments | Payments on Principal of Investments | Miscellaneous   |
|---------------|--------------------|----------------|-----------------|-------------------|-------------------------|--------------------------------------|-----------------|
| Jan.          | \$ 2,910.75        | \$2,356        | \$252.00        | \$ 263.75         |                         |                                      | \$ 39.00        |
| Feb.          | 1,932.14           | 1,332          | 282.00          | 308.14            |                         |                                      | 10.00           |
| March         | 1,039.39           | 688            | 78.00           | 198.39            |                         |                                      | 75.00           |
| April         | 1,592.45           | 621            | 44.00           | 292.19            | 185.26                  | 167.00                               | 283.00          |
| May           | 441.85             | 160            | 12.00           | 259.85            |                         |                                      | 10.00           |
| June          | 315.66             | 100            | 6.00            | 209.66            |                         |                                      |                 |
| July          | 488.47             | 186            |                 | 296.47            |                         |                                      | 12.00           |
| Aug.          | 488.69             | 208            |                 | 240.69            |                         |                                      | 40.00           |
| Sept.         | 793.41             | 184            | 2.00            | 218.31            | 137.50                  | 250.00                               | 1.60            |
| Oct.          | 470.59             | 56             | 33.05           | 339.54            |                         |                                      | 42.00           |
| Nov.          | 501.25             | 44             |                 | 214.54            | 128.71                  | 114.00                               |                 |
| Dec.          | 1,245.96           | 342            |                 | 755.39            |                         | 137.57                               | 11.00           |
| <b>Totals</b> | <b>\$12,220.61</b> | <b>\$6,271</b> | <b>\$709.05</b> | <b>\$3,596.92</b> | <b>\$451.47</b>         | <b>\$668.57</b>                      | <b>\$523.60</b> |

### SCHEDULE A-3

#### Statement of Medical Defense Fund for the Year Ended December 31, 1934

Cash and Investments on Deposit, 1-1-34 \$722.90  
Received from Members Exhibit "A" 709.05

Total \$1,431.95

#### DISBURSEMENTS

|                                                           |        |
|-----------------------------------------------------------|--------|
| 1- 6 Adams, Donelson & Pope—Adams vs. Dr. Holchan         | 75.00  |
| 1-11 Adams, Donelson & Pope—Huntley vs. Dr. Hendrick      | 50.00  |
| 1-11 W. L. Swallows—Gentry vs. Dr. Shipley                | 25.00  |
| 1-11 Dr. S. R. Miller—Clerical Work                       | 10.50  |
| 1-11 Pearson and Hlewley—Stewart vs. Dr. Hollingsworth    | 106.25 |
| 1-11 Cates, Smith & Long—Mrs. Maxey vs. Dr. Barry         | 175.00 |
| 1-11 Cates, Smith & Long—Mrs. Maxey vs. Dr. Garvey        |        |
| 4- 5 J. C. Morelock—Keen vs. Dr. Allison                  | 31.80  |
| 4- 5 Cornelius and McKinney—Keen vs. Dr. Allison          | 125.00 |
| 4-20 Dr. S. R. Miller—Clerical Work                       | 7.50   |
| 4-20 Adams, Donelson & Pope—Georgia Tans vs. Dr. Campbell | 50.00  |
| 4-27 Dr. W. L. Howell, Secretary—Refund of Dues           | 2.00   |
| 4-27 Dr. C. C. Stockard, Secretary—Refund of Dues         | 2.00   |
| 5-15 Dr. Paul Baird, Secretary—Refund of Dues             | 2.00   |
| 5-24 Dr. W. J. Sheridan, Secretary—Refund of Dues         | 10.00  |

|                                                                              |                  |
|------------------------------------------------------------------------------|------------------|
| 6-15 Dr. J. Perry Sloan, Secretary—Refund of Dues                            | 4.00             |
| 6-15 Dr. Thayer Wilson, Secretary—Refund of Dues                             | 2.00             |
| 7-16 Dr. S. R. Miller—Clerical Work                                          | 7.50             |
| 9-15 Dr. J. S. Hall, Secretary—Refund of Dues                                | 2.00             |
| 10-15 Dr. S. R. Miller—Clerical Work                                         | 7.50             |
| 10-15 Dr. L. Miller Woodson, Secretary—Refund of Dues                        | 1.00             |
| <b>Total</b>                                                                 | <b>\$ 696.05</b> |
| Balance in Fund, 12-31-34                                                    | \$ 735.90        |
| Bill Payable for Services Rendered in 1934, but unpaid at December 31, 1934: |                  |
| Dr. S. R. Miller—Clerical Work                                               | 9.00             |
| Balance Available for Unpaid Claims and Expenses                             | \$ 726.90        |

## SCHEDULE A-4

## Statement of General Fund for the Year Ended December 31, 1934

|                          |          |
|--------------------------|----------|
| Balance January 1, 1934: |          |
| Cash (Deficit) Corrected | (334.72) |

## RECEIPTS

|                                      |                    |
|--------------------------------------|--------------------|
| Dues                                 | \$6,271.00         |
| Advertising                          | 3,596.92           |
| Interest on Investments              | 451.47             |
| Payments on Principal of Investments | 668.57             |
| Cuts, Subscriptions, Etc.            | 88.00              |
| Exhibit Space                        | 395.00             |
| Rent Refund                          | 16.50              |
| Miscellaneous Receipts               | 24.10              |
| <b>Total</b>                         | <b>\$11,511.56</b> |
| Balance                              | \$11,176.84        |

## DISBURSEMENTS

|                      |             |
|----------------------|-------------|
| Medical Journal:     |             |
| Printing             | \$3,247.00  |
| Postage              | 320.94      |
| Inserts and Reprints | 73.33       |
| Cuts and Half-tones  | 148.67      |
|                      | \$ 3,789.94 |

|                                 |           |
|---------------------------------|-----------|
| Convention Expense:             |           |
| Reporting Service               | \$ 376.72 |
| Programs and Supplies           | 154.00    |
| Addressing and Mailing Programs | 15.10     |
| Badges                          | 29.10     |
| Travel Expense                  | 25.40     |
|                                 | \$ 600.32 |

|                                               |             |
|-----------------------------------------------|-------------|
| Salaries:                                     |             |
| Dr. H. H. Shoulders, Secretary and Editor     | \$1,500.00  |
| Dr. Wm. Hardy, Assistant Secretary and Editor | 1,800.00    |
| Miss Willard Batey                            | 1,500.00    |
| Dr. J. O. Manier, Treasurer                   | 100.00      |
| Dr. C. M. Hamilton, Treasurer                 | 50.00       |
|                                               | \$ 4,950.00 |

|                                              |                    |
|----------------------------------------------|--------------------|
| General Expenses and Other Disbursements:    |                    |
| Postage                                      | \$ 120.00          |
| Rent                                         | 594.00             |
| Lights                                       | 19.57              |
| Telephone                                    | 84.18              |
| Office Supplies                              | 268.44             |
| Towel Service                                | 11.00              |
| Letter Service                               | 25.75              |
| Bond for Treasurer                           | 28.83              |
| Audit                                        | 65.00              |
| Travel Expense (Other Than Convention)       | 48.10              |
| Janitor Service                              | 3.00               |
| Rent of Safety Deposit Box                   | 3.30               |
| Board Meeting Expenses                       | 90.15              |
| Multigraphing Legislative Bills              | 25.00              |
| Repairs to Office                            | 6.00               |
| Code Authority Dues                          | 10.00              |
| Refunds of Dues                              | 11.50              |
| Bad Checks                                   | 34.00              |
| Expenses of Delegates to A. M. A. Convention | 163.49             |
| Federal Check Tax                            | 3.40               |
| Miscellaneous                                | 107.15             |
| <b>Total Disbursements</b>                   | <b>\$11,062.12</b> |
| Balance in Fund, 12-31-34                    | \$ 114.72          |

|                                                              |           |
|--------------------------------------------------------------|-----------|
| Bills Incurred During 1934, but Unpaid at December 31, 1934: |           |
| Medical Journal:                                             |           |
| Printing                                                     | \$ 335.85 |
| Extra Pages                                                  | 70.00     |
| Mailing                                                      | 23.00     |
|                                                              | \$ 428.85 |

|                                                                |                  |
|----------------------------------------------------------------|------------------|
| General Expense:                                               |                  |
| Stationery and Printing and Supplies                           | \$ 5.20          |
| Towel Service                                                  | 3.00             |
|                                                                | \$ 8.20          |
| <b>Total</b>                                                   | <b>\$ 437.05</b> |
| Total Operating (Deficit) in General Fund at December 31, 1934 | (\$322.33)       |

## SCHEDULE A-5

## Statement of Investment Account as of December 31, 1934

| Maker                              | Dated  | Due    | Balance 1-1-34 | Payments | Balance 12-31-34  |
|------------------------------------|--------|--------|----------------|----------|-------------------|
| S. H. Dillard and Wife (a)         | 6-1-29 | 6-1-32 | \$2,400.00     | \$262.57 | \$2,137.43        |
| T. H. Haile, Jr., and Wife (b)     | 9-1-31 | 9-1-36 | 5,000.00       | 250.00   | 4,750.00          |
| J. H. Horn and Wife (c)            | 6-1-29 | 6-1-32 | 2,316.21       | 156.00   | 2,160.21          |
| <b>Total Investments, 12-31-34</b> |        |        |                |          | <b>\$9,047.64</b> |

(a) Extended to December 1, 1936.  
(b) Now in name of R. F. Skelly.  
(c) Extended to June 1, 1935.

The report was referred to the Committee on Reports of Officers.

The report of the Board of Trustees was called for. Dr. C. M. Hamilton, Chairman of the Board of Trustees, made the following report:

## REPORT OF BOARD OF TRUSTEES FOR YEAR ENDING DECEMBER 31, 1934

*To the House of Delegates of the Tennessee State Medical Association:*

The first semiannual meeting of the Board of Trustees was held at the Hotel Patten, Chattanooga, Tennessee, April 12, 1934.

Those present were: Drs. H. B. Everett and W. L. Williamson, Memphis; Drs. E. R. Zemp and Ralph Monger, Knoxville; and Drs. H. H. Shoulders and C. M. Hamilton, Nashville.

Dr. C. M. Hamilton was chosen as chairman and treasurer.

It was decided that the policies with reference to the defense fund, formulated at the previous meeting of the Board of Trustees, should be continued. The following resolution had been adopted at the meeting in November, 1933:

"Be it Resolved, That it is the judgment of the Board of Trustees that unless 51 per cent of the members have paid defense dues by the time of the next annual meeting that the acceptance of defense dues thereafter be discontinued."

The House of Delegates had given the Board of Trustees authority to regulate the policies of the Defense Committee in 1933.

The question of securing more advertising for the JOURNAL was discussed freely. Secretary Shoulders explained that the JOURNAL is a special publication, circulated to a special class, and was only eligible to receive a special product for ad-



vertising. It is necessary to comply with the Cooperative Advertising Bureau of the American Medical Association, through which a large volume of advertising is obtained. The amount of the advertising was said to be increasing.

The subject of increasing the size of the JOURNAL was raised. The secretary stated that the size of the JOURNAL had been reduced in order that the printer might fulfill his contract without a loss after the NRA went into effect, entailing an increase in the cost of labor. The Board of Trustees concurred in this action. It was explained that the JOURNAL had to be increased or decreased by multiples of eight pages. It was suggested that the size of the JOURNAL be increased as soon as business justified.

The second semiannual meeting of the Board of Trustees was held in Room 510, Doctors' Building, Nashville, November 16, 1934.

The following members were present: Drs. H. B. Everett and W. L. Williamson, Memphis; Drs. E. R. Zemp and Ralph Monger, Knoxville; and Drs. H. H. Shoulders and C. M. Hamilton, Nashville.

The following guests were also present: Drs. J. O. Manier, John M. Lee, and W. M. Hardy, Nashville; and Drs. T. R. Ray and W. H. Avery, Shelbyville.

The Board took action to the effect that when an account for space in the Journal Directory became six months in arrears it be automatically cancelled.

Dr. John M. Lee, Chairman of the Committee to Contact Candidates for the House and Senate, made a very encouraging report. He had received pledges from thirty of the thirty-three senators and seventy house members to support the bill to authorize the governor to appoint a board to control the policies of the State Health Department. The Board of Trustees expressed thanks and appreciation to Dr. Lee and his committee for their untiring efforts and persistence in an accomplishment for which every physician in the state owes a debt of gratitude. The local physicians also deserve credit for wholehearted cooperation.

It was suggested that since the House of Delegates at the annual meeting in 1934 had passed a resolution that the Legislative Committee was the only committee authorized to speak for the Association all questions pertaining to legislation should be referred to the Legislative Committee, and that no members or organization endorse any form of legislation until it had been examined and approved by the Legislative Committee.

A bill circulated by the American Association for Social Security, which had been submitted to the members by mail in advance of the meeting, was discussed. The Board decided to request the Legislative Committee to oppose the passage of the bill in the next legislature.

In the report by the secretary-editor a recom-

mendation was made to increase the annual dues of the State Association.

The Board of Trustees unanimously passed a resolution to sponsor a movement before the House of Delegates at the next meeting to increase the dues from \$4.00 to \$6.00 per year, to be effective on payment of the dues for the year 1936. The president of the State Association has a very broad conception of the needs of the Association by a keen analytical study while serving as treasurer for twelve years and a term as president. He feels that there is a definite demand for more revenue to carry on the increased activities of the Association.

The Committee on Education has planned a rather extensive program of holding clinics and lectures in various counties of the state. This will be done with a sacrifice both in time and expense. It seems that at least the traveling expenses should be paid from the state treasury.

The defense fund has been discontinued and the expense of several pending suits will have to be paid from the general fund. The size of the JOURNAL should be increased and this will require more expense. In the past many important activities have been curtailed in order to balance the budget. Small payments on the principal mortgage loans have been used to meet obligations instead of being reinvested.

The State Association is more thoroughly organized than ever before. Nevertheless, conditions are changing so rapidly that it is absolutely necessary for even a closer union and a better understanding among the members. Outside influences are continuously hammering at our dissolution. Alert, active, and unhampered leadership will be needed to guide the destinies and to safeguard the rights of our profession.

Respectfully submitted,

C. M. HAMILTON, M.D., Chairman.

Certain amendments to the constitution and by-laws, which had been prepared and endorsed by the Board of Trustees, were then read by Dr. Hamilton and referred to the Committee on Amendments to the Constitution and By-Laws. The amendments were as follows:

#### AMENDMENT TO THE BY-LAWS WITH RESPECT TO THE PER CAPITA DUES

It is moved that Chapter IX, Section 1 of the By-Laws be amended by striking out the words, "An assessment of \$4.00 per capita," and inserting the words, "An assessment of \$6.00 per capita."

It is moved that Chapter IX, Section 3 of the By-Laws be amended by striking out the following words: "The assessment of \$4.00 per capita for each member," and inserting instead the following words: "The assessment of \$6.00 per capita for each member."

## SECRETARY'S REPORT

Dr. H. H. Shoulders read his Secretary's Report, which was referred to the Committee on Report of Officers.

REPORT OF THE SECRETARY-EDITOR FOR THE  
CALENDAR YEAR 1934

*To the House of Delegates of the Tennessee State Medical Association:*

I have the honor to submit herewith a brief summary of the activities of the headquarters office for the calendar year 1934.

## Membership

At the end of 1934 the membership of the Association was 1,541. This is an increase of 107 above the membership at the end of 1933.

There were fifty-nine active component societies during the year, embracing sixty-eight counties.

In previous years we have reported on activities aimed at the combination of smaller local units in such a way as to make a larger membership in each local society with a smaller total number of societies. There is no need to amplify the statements made then. The same reasoning holds good today. This much could be added, however. The matter of postgraduate education, a subject to which much study has been given, should be mentioned.

It has become increasingly evident that the most important postgraduate education that the practitioners of medicine can engage in, as a whole, is the postgraduate education carried on in the communities in which they practice, provided the proper conditions exist with respect to organization.

Your Educational Committee, during this year, has, with some success, encouraged the combination of smaller units into larger units for scientific purposes only. This movement should grow. However, the situation is such that the local units themselves must determine, first, whether they will combine or not combine, and, second, the extent of the combination.

My personal feeling is for a local unit to carry on all the activities that a local organization should engage in, with particular reference to postgraduate work, the membership should not be less than thirty. The combinations should be efficient to accomplish such a membership. Certainly twenty-five members is a minimum.

You may analyze the activities of the local societies throughout Tennessee, as we have done repeatedly, and it will be found that on the average the societies with a membership of ten, twelve or fifteen have infrequent meetings and a small number of papers read in a year. In fact, their postgraduate activities are exceedingly limited. Mind you, there are several exceptions which could be mentioned, but there is just a sufficient number of exceptions to prove the rule. The excuse I would

offer for raising this question again is that the membership can be made so much more valuable to each member. It makes possible so many activities that are not possible with small numbers. It makes possible the use of endowment funds which might be obtained for carrying on such activities in a very systematic way.

## The Journal

Each issue of the JOURNAL was mailed on time. You are familiar with the quality of its content. It is not necessary to dwell on this.

It is not necessary to remind this body of the times through which we are passing and of the many crosscurrents that are clashing over the heads of the medical profession. Editorially, we have endeavored to uphold the traditions of our profession. We have endeavored to uphold the ethical principles which constitute the foundation stones on which the structure of our professional existence rests. We have endeavored to inform the membership of developments that are taking place insofar as it was in our power to keep ourselves advised. As you doubtless know, changes from time to time have been made with astonishing rapidity.

You are familiar with the fact that the House of Delegates of the American Medical Association was called into extraordinary session, which is one of the few times this has ever occurred. This was done for the purpose of considering the problems with which we are immediately confronted. To my way of thinking, the most important single reason for that action was that of determining whether or not the profession of medicine of America has the good sense, the integrity, the self-sacrifice, and the ability to stand by the traditional principles which have made our profession great in America, or whether we would compromise with every socialistic wind that blows, however attractive the aroma from the rose of propaganda might be at times.

There certainly is a minority of our membership who in devious ways seek to retain their contacts with organized medicine and at the same time betray these principles.

It is for the membership to determine whether these editorial efforts have been a success or a failure.

## Finances

An audit of the books of our office will be presented to you by the treasurer. However, it is necessary for me to discuss this audit in order to give you a picture of what takes place.

In reality, the Association has four sources of income: (1) Membership dues; (2) advertising; (3) interest on investments; (4) receipts from the rental of exhibit spaces.

Another income which appears as a miscellaneous in the audit refers to amounts received for cuts,



etc., which is not an income at all, but a reimbursement for certain expenses.

You will readily understand that the income from each of these sources has been markedly diminished by the depression.

Our income from advertising is second only to our income from dues.

Our income from dues in 1934 amounted to \$6,271.00. Our income from advertising amounted to \$3,956.92.

We have maintained the high standard of our advertising. We have not accepted advertising of unethical products in order to bolster our diminishing income from advertising. We have kept the advertising pages of our JOURNAL on the highest plane. We have not engaged in high pressure salesmanship of advertising which involves an enormous expense in selling and which works out in most instances at no profit. We have endeavored in every way to maintain the level of our net income from advertising without engaging in doubtful ventures and without lowering our standard of quality.

At this point it should be again mentioned that our dues are only \$4.00 per year, which includes the subscription price of the JOURNAL. This is the lowest membership dues of any state in the Union which publishes a journal. The average membership dues of all the states runs around \$10.00 per year.

Our expenses have been curtailed in every possible way. In the last year, however, the operation of the NRA increased the cost of printing the JOURNAL by almost \$300.00. This is mentioned not in the nature of a complaint, but in order to portray the facts as they are.

Our gross operating receipts amounted to \$10,842.99. Our gross operating expense amounted to \$10,625.35, which shows an operating profit of \$217.64.

Our organization is now compelled to engage in many activities which were not engaged in some years ago. We are compelled to be active in combatting the influences which would destroy us, and these activities cannot be engaged in without the expenditure of a moderate amount of funds. Paper, postage, printing, etc., all cost money.

We have some resources in the form of investments which were built up in more prosperous times, which we can draw upon to take care of deficits in less prosperous times. This, of course, is what all organizations have been compelled to do which have had the wisdom to create a surplus and preserve their surplus thus created in order to take care of deficits in hard times. The most powerful and best operated corporations in the United States have found it necessary to do this very same thing.

We are glad to report that the first quarter of 1935 shows a decided improvement in our income, with particular reference to membership dues and advertising revenue.

I do not want to tire you with an exhaustive

analysis of the audit which will be presented by the treasurer. It has been accomplished by a certified public accountant and will be examined by the proper committee of the House.

I am glad to say in concluding this part of my report that I am glad our financial position is as safe as it is under all the adverse conditions we have had to deal with for a period of five years.

An effort has been made in the preceding paragraphs to familiarize the House with the conditions as to membership, the financial condition of the Association, the operation of the JOURNAL, etc.

Before concluding, may I say that the activities of organized medicine, as a whole, have multiplied enormously in the past few years. It is necessary that this is true. It is the response of organized medicine to new problems that have arisen. The profession of Tennessee has arisen to these problems. It has arisen in judgment and in strength and in activity. This House has not yet taken an action for which it need offer any apology today.

In my opinion, your executives and your committeemen have been active, alert, and intelligent. These activities, in one way or in another, come across the desk of the headquarters office.

Permit me to say, in conclusion, that from the position I occupy I may be able to see evidences of progress which are not apparent to you. From these observations I have the conviction that organized medicine has strength and that strength is arising and multiplying, and is directing itself along the proper channels.

In my humble opinion, there was never a time in the more than a century of our existence when the profession was more firmly united and more determined than is the case today. Evidence in support of such an assertion multiplies each day.

Again as I view the future from this outpost I see victory if we remain steadfast to the principles that have made our profession the outstanding profession of the world today. We will have unpleasant tasks to perform. We have, though, few in number who from weakness or from treachery are disloyal to the principles for which our organization has stood and still stands. This fact constitutes one of our major dangers. This constitutes one of the problems with which we are compelled to deal in the future. I have faith that all of the problems will be met intelligently, effectively, and in the greatest possible public interest.

Respectfully submitted,

H. H. SHOULDERS, Secretary-Editor.

April 9, 1935.

## REPORT OF COMMITTEES

### Scientific Work

Dr. H. H. Shoulders, chairman, filed a copy of the program of the general session as the report of the Committee on Scientific Work. The report was not referred to any committee.

### Public Policy and Legislation

Dr. L. W. Edwards, chairman, read the committee's report.

#### REPORT OF THE LEGISLATIVE COMMITTEE TO THE HOUSE OF DELEGATES OF THE TENNESSEE STATE MEDICAL ASSOCIATION

Your Committee on Public Policies and Legislation cannot make a complete report at this time, the reason being that our legislative activities are not yet completed. We will, however, give you a brief summary of what has been accomplished. The House of Delegates last year gave instructions to the Legislative Committee to secure the passage of a bill providing for the reorganization of the Health Department, with which you are all familiar.

At the meeting last year a committee was appointed by your speaker, with Dr. John Lee, chairman, to work with the profession over the state and to contact the candidates for governor and all prospective candidates for the legislature. Dr. Lee and his committee did wonderful work, and as a result of the activities of this committee, in cooperation with the other officials of the Association, a large majority of the legislators pledged themselves in writing, or verbally, to support the bill, also the candidates for governor pledged this committee their support in passing this bill.

A few days before the legislature convened in January a meeting was called of the Legislative Committee, and at this meeting, after a thorough discussion of what had been accomplished at that time, and after due consideration of the best policy to pursue in getting the bill passed, it was the consensus of opinion that a conference with the governor was important because he had promised to make this bill an administrative measure and sponsor its passage. An appointment was made with Governor McAlister through Dr. Edwin Cocke, who, by the way, has cooperated one hundred per cent with your Legislative Committee in all legislative matters. At this conference the governor advised us that he would take the bill over and have it introduced, which he promptly did a few days after the legislature met. Some few days, however, after the bill was introduced both in the Senate and in the House, Senator Ewell, who introduced the bill in the Senate, withdrew the bill from the Senate, and Senator Todd introduced another bill to reorganize the Public Health Department. The latter bill was sponsored by people who opposed the Association's bill. As soon as this happened a consultation was held with Dr. Cocke and he very promptly had the latter bill "killed" and our bill reintroduced, and in the course of due time the measure was passed and signed by the governor. As you all know, the governor then issued commissions to the various members of the State Board of Health, the same members taking their respec-

tive places on the board as they were appointed last summer by an edict from the governor.

At the last meeting in Chattanooga the House of Delegates also instructed the committee to take up the question of the passage of a bill to have the governor appoint a State Board of Medical Examiners from a list of doctors' names submitted by the House of Delegates. This resolution was sponsored by Dr. Battle Malone, of Memphis, and has been introduced in both houses, but the governor is objecting to it in that it takes away some of the governor's power. Further work will be necessary however, and Dr. Cocke has promised to meet with our committee and arrange for a conference with the governor to see if this matter cannot be straightened out. Dr. Battle Malone also sponsored a resolution last year to have the committee introduce a Basic Science Law, but this has not yet been taken up, but will be decided on by the committee during the meeting.

Your committee felt that it was most important that the health bill be passed before any other legislation be taken up.

The nurses' association sponsored a bill, as you know, which has been passed, requiring the appointment by the governor of a board of nurses with two doctors, the doctors to be selected from a list of six names submitted by the House of Delegates of this Association. Your committee did not feel that as a body it was concerned with the nurses' bill, but various members of the committee felt that certain amendments were necessary to the original bill, and the members of the committee individually assisted the profession in securing the amendments which apparently made the nurses' bill satisfactory to the profession.

Respectfully submitted,

L. W. EDWARDS, Chairman.

Referred to Committee on Reports of Committees.

**SPEAKER ZEMP:** Gentlemen, in this short report you have no idea of the immense amount of work that this committee has done for the medical profession of Tennessee. I don't think we ever had a committee that worked harder and was more faithful to its trusts than this committee was, and its results verify that statement. I cannot help at this time but pay a high tribute to Dr. John Lee, of Nashville, who did a yeoman's work in getting together the various committees and contacting the various representatives and senators all over this state. There's a man that did a wonderful amount of work, and I believe that this House of Delegates owes him and this committee a vote of thanks. I will entertain a motion to that effect.

**DR. V. L. LEWIS (Crossville):** Mr. Chairman, I move that we extend Dr. John Lee and his committee a rising vote of thanks for this most efficient work that he has done.

**SPEAKER ZEMP:** All in favor please rise.  
A rising vote of thanks was given.



## REPORT OF COMMITTEE ON EDUCATION

DR. O. S. WARR (Memphis): Mr. Speaker and members of the House of Delegates, in the several meetings that our committee has held we have been fortunate in having with us both Dr. Manier and Dr. Shoulders, and we feel that the report herewith submitted meets, in substance at least, with their approval.

Dr. Warr read his report.

## REPORT OF COMMITTEE ON MEDICAL EDUCATION

*Mr. Speaker and Members of the House of Delegates:*

When this Committee on Medical Education was created its duties, so far as we can learn, were never clearly defined. We assume that the ultimate objective was to raise the general level of proficiency throughout the entire medical profession of the state. Obviously medical education in its broadest sense includes (a) premedical training, (b) undergraduate instruction, and (c) postgraduate instruction. While each of these phases is important, it was the unanimous opinion of the committee that first attention should be given to the problem of postgraduate instruction. Since only a small percentage of our membership, outside of the larger cities, will, for obvious reasons, leave their practice to go to medical centers for postgraduate study, it becomes the duty and responsibility of this Association to carry such instruction to them.

With the reorganization of our State Health Department as provided for in the bill enacted by the present session of the legislature, which was passed at the instigation of this body, our Association has assumed certain definite responsibilities with reference to public health and preventive medicine which were formerly borne by our public health officials. Under the old regime there was much complaint among our members that our State and County Health Departments were constantly trespassing on the domain of the private practitioner and rendering service which properly should have gone to him. Since our Association fostered the present plan of organization of our State Board of Health, the public will hold us accountable for its effectiveness. Therefore, if we are to keep faith with the governor and the legislature we must see to it that the rank and file of our membership are equipped to render a better service than was done under the former regime.

Obviously the character of postgraduate instruction needed is not the same for all localities. While in general each component society of this Association should, as far as practicable, decide as to its own particular needs your committee recommends that, in the beginning at least, especial emphasis should be given to instruction in established methods of preventing communicable diseases. Next we would urge a series of lectures on obstetrics. These

to be followed as rapidly as facilities will permit by a series of lectures on general medicine and surgical diagnosis. Under the head of general medicine we would recommend that a series of lectures and demonstrations be given on physical therapy. In the opinion of your committee, physical therapy constitutes one of our most valuable therapeutic measures and at the same time one of the most neglected. By physical therapy we mean all those measures used in the treatment of disease other than drugs and surgery, and not merely the use of a lot of expensive nickel-plated electrical gadgets. Heat, massage, and exercise have been employed since antiquity, but it is surprising how little effort has been made to apply them scientifically. This attitude of indifference to this field of therapy is attributable primarily to the fact that no attention whatever is paid to it by the majority of medical schools. Such indifference on the part of the medical profession is responsible more than anything else for the advent of so many cults to the healing art. So long as we offer nothing better the public will continue to patronize the osteopaths, the chiropractors, and the Christian Science practitioners, and it will not profit us anything to pooh-pooh them.

Realizing the deplorable conditions now existing in the application of physical therapy, and at the suggestion of the Council on Physical Therapy of the American Medical Association, your committee recommends and urges the appointment of a special standing committee to be known as the Committee on Physical Therapy, same to be composed of an internist, a surgeon, an orthopedist, a neurologist, and a pediatricist. That this committee, in collaboration with the Committee on Medical Education, be charged not only with the responsibility of stimulating interest in the subject among all the practitioners over the state, but that it use its influence toward having the medical schools of this state include a special course in physical therapy in their undergraduate curricula.

A number of plans have been evolved for making postgraduate extension courses available for those who are unable to leave their fields of practice. No one plan yet tried, in the opinion of your committee, seems adaptable in its entirety to our particular needs. We recommend a modification of the North Carolina plan, not only because it has been one of the most successful, but because economic conditions in that state closely resemble those of our own.

The plan we suggest is as follows:

(1) That a subcommittee on Medical Education be formed in each district consisting of the councilor as chairman and the president and secretary of each county society or group society in the district whose duty it will be, first, to select one or more strategic locations, preferably in towns of fifteen hundred population or more, to be used as teaching centers. Second, to canvass the membership of the district at once to determine how many

physicians will agree to attend a course of lectures and clinical demonstrations, the time and frequency to be determined by that committee.

(2) That, for this postgraduate extension course, a program committee be formed consisting of the chairman of the State Board of Health, the Committee on Medical Education, together with the president and secretary of our State Association, and the State Commissioner of Health as ex-officio members.

(3) That this program committee meet within thirty days after the final adjournment of the House of Delegates and thereafter at least once every six months and arrange a series of tentative monthly programs with the names of two or more instructors who would be willing to give the proposed lectures and demonstrations. That these suggested programs be submitted to the district subcommittee who will select the program and instructor preferred and also arrange for the time and place of the meeting.

(4) That, in order that the work be started without further delay, the House of Delegates appropriate a sum of not more than \$25.00 for the first program in each district, the same to be used in defraying the traveling expenses of the instructors. That the expense incurred in putting on subsequent programs be met by requiring a registration fee of not more than \$2.00 for each physician in attendance.

Respectfully submitted,

OTIS S. WARR, Chairman.  
W. H. WITT.  
FRANKLIN B. BOGART.  
OLIVER W. HILL.

Report referred to Committee on Reports of Committees.

#### ADVISORY COMMITTEE TO THE WOMAN'S AUXILIARY

Dr. B. F. Byrd, chairman, read the report.

*To the House of Delegates of the Tennessee State Medical Association:*

GENTLEMEN:

As chairman of the Advisory Committee to the Woman's Auxiliary, I wish to submit the following report:

During the past year the auxiliary has progressed exceptionally well under the able leadership of Mrs. Willis Campbell. The organization is still comparatively young, and Mrs. Campbell and her official staff have done much toward further perfection of the organization through coordination of their efforts and now seem to be in good position to accomplish the purposes for which it was formed. Mrs. Campbell is certainly to be congratulated on her accomplishments during the past year.

Your committee would like to incorporate a suggestion that the members of the State Medical As-

sociation take a more serious interest in the auxiliary and encourage all eligible members of their families to join the auxiliary, take an active part in the work, and encourage the formation of local organizations throughout the state.

Respectfully submitted,

B. F. BYRD, M.D.,

Chmn. Advisory Committee, Woman's Auxiliary.

Report referred to Committee on Reports of Committees.

#### LIAISON COMMITTEE

Dr. W. C. Dixon, chairman of the committee, read its report.

The Liaison Committee was created by the House of Delegates in 1931.

It immediately entered into a study of the question of public health in Tennessee.

It was concerned with the best means of supplying necessary public health service to the people of the state. This study necessarily took into consideration the part which the private practitioner should take in this matter, and his relationship to the question as a whole, and to the activities of the State Health Department.

The committee, as a result of this study, concluded that the greatest good could be accomplished by the creation of a State Board of Health to formulate the policies and direct the activities of the Department of Health, to the end that there might be close cooperation between the department and the profession.

At the meeting in 1932, the House of Delegates approved this idea, and instructed its representatives to prepare and introduce a bill into the legislature embodying this plan. This committee aided in the preparation of such a bill, and also in the effort made to pass it. As you all know, this effort failed, but the present legislature has enacted the bill approved by the House of Delegates at the Chattanooga meeting, and the Board of Health as provided for in the bill has been appointed and is now functioning.

Because of this fact the Liaison Committee has had little to do during the past year. However, our interest in the questions involved is still keen. For this reason we hope we may be indulged to the extent of expressing ourselves on one or two points.

It is our belief that the profession of the state is now to a certain extent on trial, and its actions will be watched more closely than ever. Certain animosities have been engendered by our efforts, and there will be those quick to take advantage of any sins of omission or commission on our part. We are more concerned with sins of omission.

We have expressed a willingness and a desire to accept responsibility for the public health of the state. We have an outstanding Board of Health to direct the affairs of the Department of Health. It is our belief that we, as individuals, can best uphold the hands of our board by interesting our-



selves in questions of public health as they directly concern our own patients and communities.

We should extend the benefits of protective immunizations to our own patients. Few children in Tennessee should need diphtheria toxoid when they reach school age. The doctor who delivers the baby should see that this protection is afforded the child as religiously as he puts silver nitrate in the eyes. The same applies to typhoid and small-pox vaccination.

It is perfectly ethical to recommend these things to our patrons, and we are not meeting our responsibility when we fail to do so.

The same thing applies to questions of a general nature such as sanitary problems.

We have asked for responsibility in such matters, and it has been given to us.

It is now incumbent on us to live up to this responsibility.

We feel that the House of Delegates should give consideration to the future function of the Liaison Committee.

Since we have a Board of Health, should it be discontinued, or should it still serve as a connecting link for the association in matters pertaining to the Department of Health, and as an agency to coordinate the efforts of the profession and the Health Department in protecting the health of the people of the state?

We leave this question with you for consideration.

The report was referred to the Committee on the Reports of Committees.

#### STATE TUBERCULOSIS HOSPITAL COMMISSION

Dr. John Freeman read the following report for the commission:

*To the House of Delegates:*

Your Committee on Tuberculosis Hospitals feels in view of the present uncertainty in business affairs and the constantly increasing taxes that are being placed on our citizenship that no action should be taken with reference to any additional hospitalization of the tuberculous.

Larger counties of the state have adequate facilities for the hospitalization of their own tuberculous, and while they are not confining their activities entirely to the needy, they are rendering an excellent service to their communities.

W. S. RUDE, Chairman.

H. R. TOWNSEND.

O. N. BRYAN.

J. L. HAMILTON.

Report referred to Committee on Reports of Committees.

#### HOSPITAL COMMITTEE

DR. LEE GIBSON, Johnson City: Mr. Speaker, we have an apology. I wish to say that our committee hasn't had a meeting. It is unfortunate as chairman of the Hospital Committee that I am so far removed from the central office. I really think

the chairman ought to be in close contact with the secretary and president of the State Association, as there are many hospital problems. The jurisdictions of the doctors in controlling these problems are rather poorly defined, but owing to the present depression a great many of the hospitals are put up against a pretty serious proposition about financing for indigent patients, what constitutes a charity patient, and to outline that is right difficult for a small committee that isn't in touch with the central office.

This year a problem came up—a nursing bill which was of a great deal of interest to all the hospitals in the smaller communities. Our committee was divided all over the state. We had no meeting. Of course, the Legislative Committee did their part, but the Hospital Committee could not function as it should have under the emergency. There are other problems surrounding us today that should be taken up not only by the committee, but I think by the House of Delegates. We are having flung at us constantly the question of compulsory insurance and elective insurance, and other problems that affect particularly the smaller hospitals in the cities outside of the four or five larger cities of the state. We haven't received any request from any members of the Association to investigate any particular problem or put over any particular propaganda. However, as I say, there was a big field for work this year, as there is next year, and practically nothing was accomplished. I think it would be very much better if the chairman was so situated he could be in closer contact with the central office.

LEE GIBSON, Chairman.

Report referred to Committee on Reports of Committees.

#### CANCER COMMITTEE

DR. RALPH MONGER, Knoxville: Mr. Speaker, the report of this committee will be more or less of a separate division of the Educational Committee. The report is as follows:

#### PROGRAM FOR CANCER CONTROL TO BE SPONSORED BY THE TENNESSEE STATE MEDICAL ASSOCIATION

The Cancer Committee of the State Medical Society should be more or less permanent in character. A minority of its membership should be appointed each year for a period of five years in order that the experience and efficiency of the committee be not injured.

The cancer control program for the first year or two should be limited to activities within the medical profession.

#### Outline of Activities of Committee on Medical Approach

A. Stimulate interest in cancer program among physicians through:

1. Distributing medical abstracts and reprints.

2. Publishing articles in medical journals on cancer; sending out reprints on request.
  3. Arranging cancer programs for state medical meetings; also county and district meetings.
  4. Arranging cancer symposium and clinic demonstrations.
  5. Encouraging greater emphasis on cancer in medical school courses.
  6. Having questions on cancer inserted in medical examinations.
  7. Showing cancer films to medical groups and lending same to doctors.
  8. Assembling good slide collections and lending same.
- B. Encourage the establishment of clinics in general hospitals through:
1. Cooperation with hospital authorities. Refer to American College of Surgeons' booklets and standards. Aiding in reorganization of hospital facilities and staff in order to establish clinic. Help in raising funds for equipment.
  2. Clinic demonstrations in cooperation with hospitals.
- C. Encourage the improvement of existing facilities through:
1. Writing articles in medical journals calling attention to needs.
  2. Stimulating gifts of money for radium, new equipment, etc.
- D. Encourage postgraduate work among physicians through:
1. Short courses in clinics on various phases of cancer therapy. (Bloodgood type. Refer to his experiments and program.)
  2. Offer scholarships and fellowships to outstanding men.
  3. Offer prizes to interns for best work in cancer.
- E. Stimulate interest in nursing groups in cancer through:
1. Distributing booklets on cancer to graduating nurses.
  2. Articles in nursing magazines.
  3. Distributing reprints on cancer.
  4. Securing greater emphasis on cancer in nurses' training courses.
  5. Having questions on cancer inserted in examination questions for nursing diplomas.

RALPH H. MONGER, Chairman.

A. M. PATTERSON.

J. A. CRISLER, JR.

JAMES W. McCLARAN.

HOWARD KING.

E. T. WEST.

J. A. McCULLOCH.

Report referred to Committee on Reports of Committees.

SPEAKER ZEMP: Gentlemen, this is the first time since I have been Speaker of the House that

we have had a report from every committee. I think that is a splendid record.

#### DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION

Dr. E. G. Wood read the report for the delegates. (Dr. Wood's report was published in the May issue of the JOURNAL, page 179.)

Upon motion, it was voted to "accept and file" the report.

#### ADDRESS OF DR. AUSTIN A. HAYDEN

Dr. H. H. Shoulders was requested by Speaker Zemp to introduce Dr. Austin Hayden, resident trustee of the American Medical Association.

Dr. Hayden spoke as follows:

DR. AUSTIN HAYDEN: Mr. Speaker, Gentlemen of the Tennessee State Medical Society: I cannot begin to tell you how much I have enjoyed my visit in Tennessee without first paying tribute to the efficiency of your medical organization in the state of Tennessee, and that means to every member of this House of Delegates, but especially to Dr. Manier, your president; Dr. Zemp, your speaker; Dr. Shoulders, your secretary-editor; and to the members of the House of Delegates of the American Medical Association that grace that body from the state of Tennessee, Dr. Wood, Dr. Shoulders, Dr. Everett, Dr. Newell, Dr. Cullom, Dr. Ellett. I do not know of any constructive measure that has come before the House in the past eleven years that I have had the privilege of sitting in the House that has not had the hearty endorsement, if indeed it was not originated in Tennessee.

I say that I have enjoyed myself since I have been in Tennessee. I took a little look into the Southland—I think you consider Kentucky the Southland—before coming down to Nashville, and I looked around there somewhat through the eyes of a graduate of Vanderbilt University who was my predecessor as treasurer of the American Medical Association and who was one of its, I think, most distinguished presidents, Dr. William A. Pusey, of Chicago. Dr. Pusey was described not very long ago at a banquet where he was introduced in Chicago as one of the most famous country practitioners of medicine whose office was at 7 West Madison Street, Chicago, and when I visited his home town of Elizabethtown, Kentucky, on Sunday, I saw that that introduction was exactly in accordance with the facts.

I want to tell you one or two of the things that I saw in Elizabethtown. Elizabethtown, as you perhaps know, is a town of about three thousand people, about sixty miles southwest of Louisville, Kentucky. One of the things that I saw there and that I paid my respects before with great reverence and with great feeling was the tomb of the great Lincoln, I mean the memorial of the great Lincoln, and I read on the stone there that "all I have been in life I owe to my sainted mother," which—well,



I neglected to go to church Sunday, but I felt that the visit to Lincoln's tomb was a service of that sort that rarely becomes the privilege of an individual that comes from anywhere except in the neighborhood of Hodgenville, Kentucky.

Now going from the administration of Lincoln down to the present administration, we looked upon, in the town of Elizabethtown, a new post office, and I was very much interested in what Dr. Pusey told me about that post office. Very briefly, it was this. That new post office is a magnificent building for Elizabethtown—it is a magnificent building for any town. Its cost to the federal government is \$300 a month. The cost of the old post office was \$85 a month, the difference being represented by janitor care, by steam heat, and by an extra clerk. Now, the thing that impressed me was the fact that the citizens of Elizabethtown have to walk four blocks further for their mail—they pay \$215 a month more for that mail—and, of course, there is no more mail coming into that post office than there was into the old one, with the exception of the Congressional Records that are coming in there just at the present time, and they come in free. (Laughter.)

Now you have listened to Dr. Wood's very excellent report of the action of the House of Delegates of the American Medical Association. You know that since the meeting of that House in Cleveland last year many things have been going on in the United States, and many of these things have concerned the doctors of medicine and the practice of medicine, and I believe will concern the medical care of the people of the United States to a very marked degree. First of all, there was a pronouncement by the President of the United States just before he left last June for a trip to Hawaii, that medical sickness insurance would be one of the measures that he would foster for the promotion of economic security. Sickness insurance was fourth in the list of objectives. By the fall it had gotten down to be fifteenth in his list of objectives, and now it is not mentioned. I want to mention the work that Dr. Shoulders did with the veterans, the work that has been done by the Legislative Committee of the American Medical Association, the tremendous amount of work that has been done by headquarters—Dr. Woodward of the Bureau of Legal Medicine has been mistaken on several occasions for one of the train crew on the Pennsylvania Railroad between Chicago and Washington, on account of the fact that he has been on the train so often, and he has been going down to Washington to give some advice to the federal government as to how they should handle the question of sickness insurance.

Now why did that assume such a large importance in Mr. Roosevelt's calendar? It assumed that very largely from the statement that was circulated very generally following the publication of the committee's report on the costs of medical care, to the effect that 50 per cent of the people of

the United States were deprived of medical service on a basis of their inability to pay for medical service. Olin West, in July of the past year, addressed a letter to the mayors of four hundred of the larger cities of the United States to ascertain whether there was evidence for such a statement. We could find no evidence of that kind in Chicago, we could not find a single doctor within the acquaintanceship of any of headquarters' personnel that had ever refused a patient service on a basis of the patient's inability to pay, and we believe that this statement was untrue. We do, however, believe that many people, probably 50 per cent of the people of the United States, are without medical service, but the same is true of church service. You can lead a horse to water, but you can't make him drink. There isn't any successful way, so far as I know, of getting people to go to church, and there isn't any successful way of getting people to go to doctors except their own desire to do so. Well, the result of these four hundred letters was that in not one instance did a mayor of a city—and I am sure Nashville and many of your other cities in Tennessee were included in this list—cite a case of medical services being denied anybody on account of the fact that that person did not have the money to pay.

Now it seemed to me that that answered the question, but it didn't. As recently as six weeks ago I listened to a gentleman by the name of Tugwell, one of the brain trusters or brain twisters, whichever way you want to look at it, from the national capital, addressing the Chicago dental meeting. You know the dentists have perhaps the largest professional meeting of any group of the United States, and they run an annual meeting in the city of Chicago. About ten thousand people usually come to it. Mr. Tugwell was the guest speaker and the principal speaker, and he not only said there were 50 per cent of the people of the country that didn't have adequate medical care, but he said there were 75 per cent. Fishbein and I asked him after the meeting how he happened to add the extra 25 per cent, and he said he thought that was a pretty good guess. Well, it seems to me that just isn't so. At least, there is no substantial evidence to show that it is so.

Now I would like to tell you very briefly that through the activities of the American Medical Association we were able to horn into the President's advisory committee headed by a Miss Frances Perkins, the Secretary of Labor, we were able to horn in, and I say that just exactly in those words because that's what I mean—into the personnel of that committee. That committee was set up, it was said to be representative of American medicine, and some very distinguished gentlemen were appointed on that committee, but they were appointed every one of them as individuals. Not a one was appointed, for instance, coming from the American Medical Association or from any other medical association. Now we felt that that was unfair, but

still when you looked around other things had been handled the same way. The railroads had been dealt with in very much the same way. Mr. Eastman was in no way a railroad executive, and still he is the arbiter of railroad affairs in this country, very much, I think equally as much, against the wishes of the railroading men, who should know railroading, I believe—as much against their wishes as the make-up of the advisory committee was that was to handle the health legislation.

We succeeded in getting into that committee, we succeeded in getting Dr. Leland and Mr. Simmons of the American Medical Association appointed as the technical experts, as two technical experts, rather, on that committee, to sit in with Mr. Sydenstricker, Mr. Falk, and Mr. Michael Davis. I have seen some of the things in Louisville today that Mr. Michael Davis had promulgated here, and they do not convince me in the least of his judgment in the matters that the Rosenwald Foundation does when they attempt to do business outside of their own particular sphere of activity. Well, we did this. The long and short of that is that you don't hear sickness insurance mentioned. If you have looked through the papers, even in the five billion dollar or the four billion eight hundred million dollar bill that has just gone through Congress, you do not hear sickness insurance mentioned. So that I have hopes that that has been postponed. Of course, it can be brought up in Congress. There is a tremendous number of people, the number of social workers in the country has increased since 1910 from one to a hundred and fifty thousand, and all of these people are interested in jobs for themselves. I cannot make myself believe that they are interested in the welfare of the doctor or of the American people, but I know they are vitally interested in a job for themselves. If they can attach themselves to the skirts of medicine or to any sort of health service that's just fine, just repeating the things that have happened in Germany, where there is one and a half social workers or clerks or administrators for every doctor in the social insurance scheme there, and with a correspondingly less amount of money left for the payment of real medical service.

Now not so very long ago there appeared in the newspapers in Chicago the statement over the signature of Mr. Harry Hopkins that there were 22,378,000 odd people in the United States that were on relief. There probably may be, I should think the guess was a fairly good one, that some of these four billion will be diverted to relief of health measures in some way or other. And it is that thing that I especially want to talk to you about, and it is for that reason that I am down at this meeting to show you tonight some of the workings of the headquarters of the American Medical Association. Now what I want to say is this, that I sincerely hope that even though sickness insurance considerations have been postponed by the national government, whatever and wherever any consider-

able sum of money is to be expended by the federal government toward care of those that are unable to pay now, either permanently unable to pay, the unemployables, or those temporarily unable to pay for such services, the unemployed, I sincerely hope that those funds will be distributed and paid for through channels of organized medicine. That means through your state organizations and through your county organizations in Tennessee, as well as in every state in the Union, because, unless we speak just as we have spoken in the Cleveland session of the House of Delegates and the Chicago session, the extra session, the second in the history of the American Medical Association, unless we speak as a unit, unless you endorse and re-endorse the principles, the ten principles that Dr. Wood has read, I am quite sure that American medicine will not fare as well as you like to have it. If there is united action much money can be saved to the taxpayers, perhaps better incomes can be secured for doctors through the channels that have already been set up than through any new bureaucracy that can be established by anyone.

I recently have become a farmer, as well and maybe better than as a doctor, because medicine isn't going so very well in Chicago. We don't have 10-cent cotton there, or 12-cent cotton, and there are a lot of things we don't have there that I think you people have. Dr. Pusey's town, Elizabethtown, has not had a single vacancy in a store all through the depression. There hasn't been a bank failure. I think that this is the prosperous community section of the country to live in. I had almost thought of moving up to my farm, but anyway I was up there the other day, and Dr. Wood was talking to me at the luncheon table today about the various things going on in Washington, the various combinations of the alphabet that have been used to designate the various activities in the extension of bureaucracy, and it brought to my mind a story that I heard when I was up in Wisconsin. That's my native state.

A farmer up there was confused in regard to these various letters, and he was so confused that he decided, being quite a prosperous man, to go to Washington and find out all about it, and he did so. He came back and the editor of the local paper there asked him what he found out, and he said he found out everything he wanted to know except one set of letters that nobody was willing to tell him about. He was asked what those letters were, and he replied they were the letters following Mr. Tugwell's name. They were B.S., M.S., Ph.D.

"Well," said the editor, "I could have enlightened you about that without your going to Washington. The first is the substance that makes the grass green and the barnyards smell. The second, the M.S., is more of the first, and the third is 'piled high and deep.'" (Laughter.)

I would not have related that incident in the



presence of ladies had I not had some training last night in listening to stories that were told by Dr. Shoulders, Dr. Revington, etc., and I think that the latitude is based upon that premise.

I want to say that I enjoy being here very much, that I appreciate the responsibilities, I hope, of the office of trustee, that I am just as Pusey is, a man whose private practice has been the first, last, and almost only thought in his life, that I have never attained the rank of professorship, that I am just an ordinary doctor, but I believe in the survival and in the proper survival of the ordinary doctor, the facilities of American medicine, both hospitalization and practice, that I think is possible to be given by the 156,000 doctors in the United States. I want to do it the same way my father did it, I would like to do it the same way that Pusey's father did it—when they found an individual unable to pay for medical care it was fixed up not in Washington, but in their own community. The officer of the poor fixed that up and it was fixed up square. There weren't calls being made, there was very little chiseling under that system. Everybody in the community knew who needed care, and there was nobody that refused to give those that actually needed care the care that they needed. I think it is possible to do that, to repeat that old system. I think it is easier perhaps in the small town, I know that it is, because in the small community everyone knows everyone else. In a city like Nashville or especially in a city like Chicago, that is not so easy. But it can be done and it can be done better than in any other way.

I was very much impressed by something Dr. Shoulders related to me, and I was further impressed by an incident he told me about, about a gentleman from Chicago, a graduate of my own college, Rush Medical College, a half Comanche Indian and a half Eskimo, Dr. Shoulders describes him as, who wandered into Nashville and told Dr. Shoulders that he had once upon a time been an Indian commissioner as well as a doctor in the state of Oklahoma. I think he got Shoulders on the statement that someone had gotten the federal government to equip these Indians with houses of twelve to fourteen rooms, every one of which had a bathtub, and the squaw and her husband, in place of using the bathtub, used their tepee in the back yard. Now with that background, this gentleman, a graduate of Rush Medical College, approaches the secretary of your State Medical Society, confesses he is passing through Nashville and is badly in need of money. Extending the always-present hospitality of the South, the secretary of the Tennessee State Medical Society promptly liquidated and sent the graduate of Rush Medical College on his way to the North. I didn't know it was so easy to get money here, but I am very glad to hear that.

Another thing that I was impressed with as I came down on the train from Elizabethtown was

the fact that three million, I think, in the Tennessee valley of the good Tennesseans are starving to death. I read that in the morning Tennessean yesterday, and then I heard this other story about the starving millions of Tennessee, that when that Tennessee Valley Authority got into full operation certain parcels of land had to be condemned, and they were given up, reluctantly, but given up nevertheless, by the people that had lived on this ground for hundreds of years. They were given up first on the promise that they would be allowed to remove the bones of their forefathers from the place over which the water would stand. That request was granted and that act was done, and the next move that these people made, although they had been paid for their land, they had had their graves moved, I understand the next movement that they made was to approach the consul general of Brazil to find out if a suitable plat of land could be secured by that community in the republic of Brazil, where they hoped to live without government interference.

Now I take my hat all the way off to the residents of a state that have that much independence. Pusey said that the only thing that his people wanted in Elizabethtown was good drinking water, good education, a small amount of money—enough to buy what they needed, and that was not very much—and they wanted to be let alone. Is it not a bad prescription for the American public? The American public is by no means a group of weaklings. They will work their way out if you let them alone. Thank you. (Applause.)

The House adjourned at 4:30 P.M.

#### WEDNESDAY MORNING, APRIL 10, 1935

Speaker Zemp called the House to order at 9:10. Secretary Shoulders called the roll. Twenty-two delegates were present.

Secretary Shoulders read the following letter:

*Tennessee State Medical Association,  
Nashville, Tennessee.*

GENTLEMEN:

We of the R. F. Boyd Medical Society, cognizant of the singleness of purpose of our respective organizations, both of which have for their aim the raising of the health quotient of the people of our state and nation, feel that their noble end can best be achieved by united action and effort.

We, therefore, petition you to grant us affiliation with your organization in order that our work may more closely synchronize for the benefit of all.

Yours truly,

W. E. A. FORDE, President.

W. H. GRANT, Cor. Sec'y.

The question brought up by this letter was discussed by Drs. H. H. Shoulders, T. R. Ray, E. R.

Zemp, A. F. Richards, V. L. Lewis, and E. A. Guynes.

On motion made by Secretary Shoulders and seconded by Dr. V. L. Lewis, it was voted to refer the question to the Board of Trustees for study and report at next meeting.

#### AMENDMENT TO CONSTITUTION

Dr. H. B. Everett and Dr. Battle Malone submitted an amendment to the constitution which will be discussed next year. The amendment was to strike out the words "and no delegate" in Section 6, Article VIII, which reads, "No delegate and no member who has not been a member in good standing for five years next preceding the election or who is not in attendance at the meeting shall be eligible for the election of president or vice-president."

#### PRESIDENT'S ADDRESS

Dr. Owsley Manier, the president of the Association, was invited to address the House of Delegates.

Dr. Manier spoke as follows:

*To the House of Delegates of the Tennessee State Medical Association:*

I would like to submit for your consideration certain problems which in my judgment merit not only the thoughts of this body, but its action as well. Some of you may not agree with me in all of the suggestions to be made, but I feel that it should be incumbent upon the retiring president each year to bring before this body all matters which may have come to his attention during his year of service which in his judgment deserve consideration and action on your part.

Some years ago this body appointed a Liaison Committee for the purpose of serving as a connecting link between itself and the membership of the State Association on the one hand and the Department of Health on the other. This committee worked diligently and out of its labors developed our legislative program for a Board of Health, which, though defeated in the legislature of 1933, has been enacted into law by the present legislature.

The legal authorization of a Board of Health such as we now have does not justify this House nor even the individual members of this Association in leaving matters of public health entirely to the board. If such a Board of Health is to succeed and justify its existence it must have the support and cooperation of the membership of this Association, and should have at intervals the advice of this body as regards certain problems and objectives to be attained.

The Liaison Committee should be instructed by this House—not only to continue its original function of adjusting any differences of opinion or difficulties that might arise between individuals in the profession and the Department of Health, but also between the annual meetings of the State

Association to function in an advisory capacity to the Board of Health, and, as representing this body, from time to time to advise with and bring to the attention of the board any such matter as the committee may feel merits the attention and action of the board. In this way there will always be in existence a proper machinery for a constant constructive interrelation between the profession and the Board of Health which should work to the best interests of all concerned.

At the present time, it would seem highly advisable for the House of Delegates by formal resolution to request the Board of Health at once to take action on the following matters:

(1) To see to it that the office of Commissioner of Health is once and for all removed from even the possibility of subsidization by proper action to prevent the commissioner from accepting an "honorarium" for minor teaching activities as well as "consultation fees" from extrastate funds participating in health work in Tennessee. The Commissioner of Health should, of course, receive a proper salary, but this salary should be from the state in order that his obligation and allegiance may be to the state and its health program alone.

(2) That the Board of Health be requested to take action to insure the fact that in the future the Commissioner of Health will not without authorization either directly or indirectly enter into negotiations with Federal Emergency Relief Authorities for the purpose of setting up any machinery or scale of fees to govern the service rendered by the medical profession of Tennessee to those individuals on emergency relief rolls.

(3) That the Board of Health be requested to establish a maximum amount for state aid in the establishment or maintenance of county units in any county so that in the future a more equitable distribution of state aid funds to counties will be made than in the past. And in addition that the financial need of the county for state aid should be the controlling factor in the amount of aid extended.

(4) That the Board of Health be requested to establish regulations insuring a fair distribution of their manufactured biologicals to all counties which may request them whether such counties have full time county units or not.

(5) That the Board of Health be requested at once to join with your Committee on Education in the program that has been outlined for the next year in an endeavor to secure earlier and more universal protection against the preventable diseases such as smallpox, diphtheria, and typhoid. The board can render the most necessary assistance in furnishing biologicals, in having its organized units set up birth registers, and at the proper time notify both parent and physician that it is time for the child to be inoculated, in following up such notification by further letters and personal visits by the nurse of the unit, in organizing lay organizations and securing their aid in fostering the pro-



gram of immunization at all ages, in arranging with the profession for a satisfactory method in caring for the immunization for the indigent, etc.

There are also certain suggestions that can be made to this body in reference to possible changes in its own machinery of organization. In this connection I would first direct your attention to your Committee on Education which began as a committee of minor importance and has now developed into probably the most important committee of the State Association year in and year out.

You have already heard the report of this committee and consequently are aware of the objectives it has planned for the future such as its plans for more complete immunization of the people of Tennessee against such preventable diseases as smallpox, diphtheria, typhoid, etc., in conjunction with and aided by the State Department of Health and its subsidiary county health units. Also its plans to foster preventive work in infant welfare, prenatal maternal care, the cancer problem, tuberculosis, the venereal problem, periodic health examinations—securing in each instance the aid of the State Department of Health and its subsidiary county units. Under this scheme of organization this committee will assume centralized control of many problems which have heretofore been delegated to other separate committees, but upon which little if any constructive work has been done. And finally, of course, this committee represents the body through which the machinery of real postgraduate education must be set up in the future.

The assumption of direct control by the organized medical profession of the problems listed above, as well as many others, is absolutely essential to the welfare of the public and the profession as well. And problems of this sort essentially medical in character, if they are to be administered successfully, must be controlled by those having technical knowledge not available to individuals without medical training. So if we as an organization do not accept the responsibility of these matters it becomes more and more apparent that lay organizations will do so.

Realizing the volume of important work which must be done by your Committee on Education in the future, it would seem highly advisable that the by-laws of this body be so amended to provide for the fact that membership on this committee should not be merely for a one-year period, but rather that the term of office of only one member should expire with each year.

Your Board of Trustees in its report has had the courage to urge action on your part in raising the annual dues of the State Association from \$4.00 to \$6.00. This suggestion cannot be too strongly endorsed. During the last three or four years the Association has in reality barely been able to remain in balance from a financial point of view. And, of course, under the present scale of dues our assets are inevitably bound to decrease during the coming years through the liquidation of the

outstanding liabilities entailed by discontinuance of the Medical Defense Program. In addition, if we are to carry on the constructive program outlined by the Committee on Education, especially that part of it having to do with the development of a system of postgraduate education under the control of this Association—and meet the other problems which an uncertain future will unquestionably cause to arise, the receipts of this Association must be materially increased. And this can only be accomplished through an increase in dues.

For your information in order that you might have comparative figures as regards dues of other similar state associations—sixteen unselected state associations scattered over the United States were contacted for the purpose of determining dues in other states. The average annual dues of these sixteen states was over \$7.50 per annum. Only two states of the sixteen—Arkansas and Alabama—carried dues as low or lower than ours, and the secretary of the Arkansas association informed us that their dues would be raised from \$3.00 to \$5.00 in 1936. Over three-fourths of the states contacted had annual dues of over \$6.00 a year.

It cannot be too strongly urged that this body take action authorizing the Speaker of the House of Delegates to appoint a committee whose function it should be to contact at once the Federal Emergency Relief Authorities and to work out plans in conjunction with the Emergency Relief Authorities for the medical care of the indigent in this state and the remuneration to be received by physicians for such services as they may render. In November, 1934, Colonel Simpson, then Emergency Relief Director for Tennessee, on his own initiative approached your Board of Trustees asking that they submit to his office a tentative plan covering the above points. A special committee of the board submitted the general principles of a plan, but shortly afterwards, before any action was taken, Colonel Simpson was removed from office. It would seem highly advisable that the committee appointed by this body contact the present Emergency Relief Administrator, and that this House of Delegates notify the administrator that only this committee can speak with authority as representing the organized profession and request the State Administrator to deal only with this committee as regards problems concerning medical services to those on relief rolls. If we do not take this matter in hand, unauthorized and unofficial individuals—either doctors or laymen—will in all probability continue to do so.

There is one other problem that I should like to place before you. And I must admit I do so with some hesitancy in view of the fact that I lay myself open to the criticism of wishing to remove from future executives some of the prerogatives I have had during my tenure of office. However, be that as it may, I feel so strongly on the matter in question that I am perfectly willing to

place myself in this position if for no other reason than to insure this question being brought before you.

I have reference to the matter of the appointment of the standing committees in this organization. Under our present machinery of operation your president is elected on the morning of the last day of each annual meeting, immediately has to assume the function of presiding on the last day, and as a result has but little, if any, opportunity to even seek personal advice as to his committee appointments. Furthermore it must be admitted that anyone holding this executive position has his close personal friends and in many instances men in this association to whom he feels some obligation and to whom he would like to extend the courtesy of a committee appointment. Furthermore at times the man elevated to the executive position of president in this Association may not have had the necessary contact with the membership at large to enable him to have sound judgment in the selection of members of the different committees.

For all of these reasons and in addition in view of the fact that the last year has impressed on me the necessity in the future of the most careful selection of the committees of this Association, if we are to attain the objectives desired, I should like to propose to this body that it take action to amend the by-laws so that power of the appointment of all standing committees be transferred from the president to the Board of Trustees.

I believe that such action would insure far more effective committees, as your Board of Trustees, as a result of the semipermanent nature of its membership, has a far better opportunity than could any one individual of knowing just who has ability for committee work, and, acting in its official capacity, could without embarrassment put more pressure on the committees to carry out their duties.

Personally, I should have been quite happy to have been relieved during the past year of the responsibility of appointing committees. And in many instances I felt that the acceptance of committee positions partook in some instances of a friendly personal gesture to me, and hence would have felt some embarrassment in bringing pressure to bear on such appointees that I would not have felt as a member of the Board of Trustees if the board were appointing the committees.

I trust that you will understand my reason for bringing this matter before you, as I have felt that it was a matter that you should consider, and for that reason alone I have been willing to assume the personal embarrassment and criticism which such a suggestion might entail.

The president's address was referred to the Committee on Reports of Officers.

#### AMENDMENT TO BY-LAWS

Dr. Hiram Laws read the following proposed amendment to the by-laws:

Amendment to Chapter VIII, Section I, of the By-Laws.  
Subject: Committees

It is moved that Section 1 of Chapter VIII of the by-laws be stricken out and that the following language be substituted therefor:

#### Standing Committees

The committees shall be as follows:

- A Committee on Scientific Work.
- A Committee on Public Policy and Legislation.
- A Committee on Nominations.
- A Committee on Medical Defense.
- A Committee on Cancer.
- A Committee on Memoirs.
- A Committee on Hospitals.
- A Liaison Committee.
- A Committee on Education.

The members of these committees shall be appointed by the Board of Trustees when not otherwise provided for in these by-laws.

Special committees may be appointed from time to time by the president to carry on special activities.

The terms of service of committeemen shall be for a period of from one to three years. The Board of Trustees is instructed to make the appointments for such a period of years that the terms of not more than two members will terminate each year.

The purpose of the House of Delegates is to promote the efficiency of committees by having experienced active members at all times in the service of the Association.

Section 1, Chapter VI, of the By-Laws (page 12) reads as follows:

The president shall preside at all meetings of the Association, shall appoint all members of committees not otherwise provided for.

Speaker Zemp referred this proposed amendment to the Committee on Amendments and asked for a report so that action could be taken the next day.

Dr. W. R. Blue, commenting on President Manner's address, spoke for the pediatricians, urging that any pediatric work in the state be under the supervision of the State Medical Association rather than any outside agency.

#### COUNCILORS' REPORTS

Reports by councilors were submitted. Statistics from their reports are tabulated as follows:

#### Second District

*To the House of Delegates of the Tennessee State Medical Association:*

GENTLEMEN:

The Second District contains ten counties. Six of these counties are organized and functioning



well. They have a total average attendance of 115 to 120. Two societies meet weekly and the others monthly.

The councilor visited each of these organized societies during the last year, and read a carefully prepared paper on "Medical Practice and the New Deal," in which was set forth the various proposed laws, both federal and state, most of which were of socialistic tendencies.

I showed that eleven European countries, with a population of 190,000,000 people, had less than 153,000 physicians, while our country had more than 161,000 physicians, and 125,291,600 people. Fifty-three per cent of the physicians are in the organized profession and 47 per cent are not members of any unit of organized medicine.

There is one physician for 777 citizens of the United States. For Tennessee, one physician for 779 citizens; for Knoxville, one physician for 562 citizens. There is an excess of 56,000 physicians in the United States.

These questions were discussed freely, and in some instances enthusiastically, by the members present at each society.

I am thoroughly convinced that an efficient society cannot be maintained in the four unorganized counties. Each has been organized and reorganized, and two with small memberships functioned in a manner as long as they had an active secretary, but one of the secretaries died, and the other is an invalid. No one else seems to be able to take their places. Repeated and persistent effort has been made to get the residents of these four counties to join adjacent medical societies. Only a few have done so.

It seems that General Sherman was correct when he said: "The East Tennesseans could often be led with some success, but the devil himself could not drive them anywhere."

This councilor has been informed that the Committee on Medical Education has been delegated with the authority, or assumed the authority, to organize and reorganize nonorganized or nonfunctioning counties.

We have not learned of any material success that they have had, but will welcome any and everything that will bring about an increase in the membership and improvement in our component societies.

We feel that under the circumstances the organizations in this councilor district have held their own and made a slight improvement during the last year.

Yours truly,

S. R. MILLER, Councilor.

#### Ninth District

Condition of district is very well organized. No active society in three of the Tennessee counties. An attempt by councilor is being made to have members in these counties join the active societies, three of which are having fine meetings. One tri-

county society, one two-county society, and one single county society have scientific meetings regularly and have good attendance.

No councilor's report was made by the secretary in three of the counties.

As a whole, the membership is approximately the same as in previous years. Six members died during the year.

Had a fine time at state meeting. It was a dandy meeting.

E. H. BAIRD, Councilor.

| COUNTY<br>and<br>DISTRICT† | Members<br>in<br>County | Physicians in<br>County | Eligible<br>Nonmembers | New | Died during<br>1934 | Dropped<br>N. P. D. | Society<br>Meetings | Average<br>Attendance | Papers<br>Read |
|----------------------------|-------------------------|-------------------------|------------------------|-----|---------------------|---------------------|---------------------|-----------------------|----------------|
| FIRST DISTRICT             |                         |                         |                        |     |                     |                     |                     |                       |                |
| Cocke -----                | 11                      | 15                      | 3                      | 0   | 0                   | 8                   | 0                   | 12                    | 12             |
| Greene -----               | 16                      | 26                      | 6                      | 4   | 0                   | 8                   | 1                   | 12                    | 12             |
| Savner -----               | 8                       | 7                       | 0                      | 1   | 0                   | 6                   | 0                   | 3                     | 8              |
| Sullivan-Johnson -----     | 38                      | 48                      | 10                     | 7   | 2                   | 23                  | 1                   | 4                     | 12             |
| Washington -----           | 37                      | 40                      | 17                     | 6   | 0                   | 29                  | 2                   | 21                    | 12             |
| SECOND DISTRICT            |                         |                         |                        |     |                     |                     |                     |                       |                |
| Blount -----               | 25                      | 31                      | 3                      | 0   | 1                   | 1                   | 50                  | 15 2/3                | 36             |
| Campbell -----             | 19                      | 19                      | 8                      | 2   | 1                   | 0                   | 12                  | 12                    | 12             |
| Knox -----                 | 135                     | 152                     | 10                     | 6   | 2                   | 14                  | 41                  | 64                    | 43             |
| Roane -----                | 11                      | 17                      | 6                      | 0   | 0                   | 0                   | 12                  | 8 1/6                 | 12             |
| THIRD DISTRICT             |                         |                         |                        |     |                     |                     |                     |                       |                |
| Franklin -----             | 9                       | 15                      | 4                      | 1   | 0                   | 0                   | 2                   | 0                     | 0              |
| Bradley -----              | 15                      | 18                      | 3                      | 0   | 0                   | 0                   | 10                  | 10                    | 8              |
| Warren -----               | 15                      | 10                      | 5                      | 0   | 0                   | 0                   | 12                  | 5                     | 7              |
| McMinn -----               | 16                      | 21                      | 6                      | 0   | 0                   | 0                   | 11                  | 9                     | 14             |
| Polk -----                 | 8                       | 11                      | 11                     | 0   | 0                   | 0                   | 3                   | 3                     | 0              |
| White -----                | 14                      | 16                      | 1                      | 0   | 0                   | 1                   | 12                  | 8 5/6                 | 9              |
| Monroe -----               | 9                       | 13                      | 4                      | 1   | 0                   | 0                   | 7                   | 8                     | 11             |
| Hamilton -----             | 113                     | 150*                    | 6                      | 4   | 5                   | 2                   | 39                  | 40                    | 36             |
| FIFTH DISTRICT             |                         |                         |                        |     |                     |                     |                     |                       |                |
| Bedford -----              | 11                      | 17                      | 6                      | 0   | 0                   | 0                   | 7                   | 8                     | 7              |
| Dickson -----              | 6                       | 13†                     | 7                      | 1   | 0                   | 0                   | 2                   | 5                     | 2              |
| Five County -----          | 23                      | 33                      | 10                     | 2   | 0                   | 1                   | 11                  | 17                    | 44             |
| Humphreys -----            | 13                      | 13                      | 0                      | 0   | 0                   | 0                   | 1                   | 5                     | 0              |
| Lincoln -----              | 16                      | 20                      | 5                      | 0   | 0                   | 0                   | 2                   | 8                     | 2              |
| Maury -----                | 19                      | 32                      | 10                     | 2   | 1                   | 0                   | 11                  | 12                    | 8              |
| Rutherford -----           | 22                      | 26                      | 1                      | 1   | 0                   | 0                   | 12                  | 14                    | 12             |
| Williamson -----           | 11                      | 19                      | 6                      | 1   | 2                   | 0                   | 10                  | 8                     | 9              |
| EIGHTH DISTRICT            |                         |                         |                        |     |                     |                     |                     |                       |                |
| Carroll -----              | 7                       | 24                      | 0                      | 0   | 0                   | 0                   | 12                  | 12                    | 24             |
| Henry -----                | 14                      | 16                      | 2                      | 1   | 0                   | 0                   | 12                  | 8                     | 8              |
| McNairy -----              | 13                      | 17                      | 4                      | 0   | 0                   | 0                   | 0                   | 0                     | 0              |
| TENTH DISTRICT             |                         |                         |                        |     |                     |                     |                     |                       |                |
| Shelby -----               | 281                     | 400                     | 25                     | 20  | 1                   | 3                   | 19                  | 72                    | 38             |

†Counties and districts omitted made no report.

\*15 Colored.

†1 colored.

#### REPORT OF MEDICAL DEFENSE COMMITTEE

Dr. S. R. Miller, chairman of the Committee, submitted the following report:

*To the House of Delegates of the Tennessee State Medical Association:*

GENTLEMEN:

We submit herewith the twenty-first annual report of your Medical Defense Committee's work for fifteen months intervening since our last report.

Our last report showed eleven suits at issue as follows: Seven in Circuit Courts, one in the Federal Court, and three in the Court of Appeals, and two were appealed from the Court of Appeals to the Supreme Court.

Seven suits have been filed during the twelve months' period.

We have handled eighteen suits during the period, two of which were tried in two courts. One suit was won in the Circuit Court. One suit has been won in Court of Appeals. Two joint suits have been confirmed in Court of Appeals with reduced verdict of \$1,500.

Two joint suits (the same as above) were confirmed in the Supreme Court.

One suit had a directed verdict.

One a voluntary nonsuit.

Two forced nonsuits.

One had two mistrials in the Circuit Court.

Two suits were refused defense for nonpayment of defense fee.

One suit was reported closed, but we could not ascertain through which channel.

One suit was compromised by insurance company—amount not reported.

Two suits we are not defending, but are defended by the insurance company.

Of the suits we are defending, four are on docket. Two forced nonsuits may, but very probably will not, be refiled. One voluntary nonsuit very probably will not be refiled. One directed verdict is ended, unless appealed by the plaintiff.

It therefore appears that there is very probably but one suit that will require defense of this committee.

This estimate is based on reports by the defendant doctor, our counsel, or the local committee member of one county that has been supervised by him.

There is, however, the possibility that one appeal may be taken, or refile of one or more of the nonsuits, or activity revived in two or three very old dormant suits that we are assured will not be prosecuted.

The committee feels that this House of Delegates should instruct the secretary and treasurer to pay any and all necessary expense further incurred in finishing this work.

As far as we can estimate from our experience, and all reports we can secure, the probable cost will be \$125 to \$300, in addition to such bills as have been approved and forwarded to the secretary.

Whether or not all approved bills have been paid, we do not know.

Some may ask why the dormant suits are not dismissed. The reason is our defendant or counsel feel there is probability of making an active suit of a dormant one, and our counsel are awaiting the courts' or the plaintiffs' action in striking the suit from the record. Too much anxiety, or activity by our counsel, would probably bring about their activity.

We have gathered much valuable information concerning legal matters, lawyers, doctors, and courts in the past twenty-one years.

When there is an imminent threat, or a suit filed against a doctor the first time, he suddenly loses all rhyme, or reason, in his terrific fright. Letters, telegraph or telephone wires cannot act fast enough for him, and all orderly action seems too slow. After the suit is won, or in a dormant state, he becomes highly indifferent, and will not give forth further information or with great procrastination.

We find lawyers have very flexible fees. When they are fully conversant with our objects and limitations, they cooperate cordially and efficiently.

We believe that, taken as a whole, we have had as good and probably the best array in the various counties. Several have stated that our fees are a minimum, or below, for such legal fees, but our cordial and intelligent cooperation has been excellent, and it is their pleasure to serve us.

Probably one cause for several of the long-drawn-out cases has been due to the sympathy, conscious or unconscious, of the courts and even of the plaintiff's attorney.

Our work has had a large influence in bringing together and cementing the local profession. One defendant doctor said he did not think he had any true and loyal friends in his home community, but when his suit came to trial every doctor in his section was present and anxious to testify in his behalf, and after several had testified the court announced that others were unnecessary, as all the others would clearly exonerate the defendant, and it took the jury only ten minutes to exonerate him also.

That doctor was the worst scared I have known, but after the verdict he said it was the best thing that had happened to him in his professional life. He felt entirely different towards all the doctors now.

Thus some good does come out of the bad.

"There is so much bad in the best of us,

And so much good in the worst of us,

That it scarcely behooves any of us

To talk about the rest of us."

SPEAKER ZEMP: I wish to state something here that has been said a number of times before. I don't believe there is any man in the United States that could handle this defense fund better than Dr. S. R. Miller. I think

"His taste exact for faultless fact

Amounts to a disease."

Meeting adjourned at 10:30 A.M.

WEDNESDAY AFTERNOON, APRIL 10, 1935

Speaker Zemp called the House to order at 2:15 P.M.

Dr. H. B. Everett informed the House that two bills were pending in the state legislature. One of these bills provides that the House of Delegates nominate two physicians from each grand division of the state. From these six nominations the gov-



ernor will select two physicians to serve on the nurses' board if the proposed law is enacted. The other bill provides for a Medical Examining Board to be appointed by the governor from a list of twelve physicians (four from each grand division of the state) selected by this House of Delegates.

Speaker Zemp instructed the Nominating Committee to name physicians to be approved by the House of Delegates so that if the bills were enacted the nominations could be sent to the governor.

#### Election of Councilors

Upon nominations by the committee and from the floor, the following were elected councilors:

Second District—S. R. Miller.

Fourth District—J. T. Moore.

Sixth District—L. W. Edwards.

Eighth District—J. R. Thompson.

Tenth District—W. B. Burns.

#### REPORT OF COMMITTEE ON REPORTS OF COMMITTEES

Dr. J. C. Pennington read the report for Committee on Reports of Committees.

#### Report of Committees on Reports

Report of Committee on Woman's Auxiliary approved.

Report of Liaison Committee approved. We suggest that the Liaison Committee be continued and stimulated.

Cancer Committee report accepted as presented.

Tuberculosis Committee report accepted as read.

Committee on Medical Education report accepted as read.

We recommend that reports from the A. M. A. House of Delegates be published in the Tennessee state JOURNAL as soon after the meeting as possible, and that these reports be placed in the hands of the Committee on Medical Education, and that they shall consider it their duty to disseminate this information to physicians of the state. We make the latter recommendation in view of the fact that so few physicians read the JOURNAL. In the past reports from the A. M. A. House of Delegates have not been made until ten months after the meeting when it is made at the Tennessee State Medical Association. We feel that in these times when legislation of all kinds is tampering with the practice of medicine every effort should be made to keep all physicians informed of what is taking place.

Report of Committee on Legislation approved as read.

We take this opportunity to warn the House of Delegates that certain nonmedical organizations have sworn vengeance on the bill passed by the present legislature which created a Board of Public Health. They are organizing to contact all candidates two years from now in order that they

may destroy the present Board of Health at the next session of the legislature.

Respectfully submitted,

J. C. PENNINGTON.

HIRAM LAWS.

By motion the House adopted the report as read.

#### REPORT OF COMMITTEE ON REPORTS OF OFFICERS

Dr. W. P. Wood read the committee's report.

#### REPORT OF THE SECRETARY-EDITOR COMMITTEE OF OFFICERS

We, the committee, after careful examination and study of the secretary and editor's report of the year ending 1934, find it correct. After having examined the report of the Board of Trustees for the year ending 1934, we fully agree with the report in advising the raising the dues of the state JOURNAL from \$4.00 to \$6.00 annually in keeping with the other states surrounding us, and that not being willing to go further in debt that we do not see any way at the present time of financing and running the JOURNAL other than to raise the dues as suggested in the report, and we heartily concur in their opinion.

W. P. WOOD, M.D.

ROBERT E. SULLIVAN, M.D.

V. E. MASSEY, M.D.

Discussion by Drs. W. B. Burns, Battle Malone, Williamson, Monger, S. R. Miller, Laws, Newman, and Dyer.

Moved, seconded, and carried that the report be adopted.

#### REPORT OF THE COMMITTEE ON AMENDMENTS

Dr. J. R. Thompson reported for the committee. The report recommended the adoption of the amendment to the by-laws as follows:

Amendment to Chapter VIII, Section I, of the By-Laws.  
Subject: Committees

It is moved that Section 1 of Chapter VIII of the by-laws be stricken out and that the following language be substituted therefor:

#### Standing Committees

The committees shall be as follows:

A Committee on Scientific Work.

A Committee on Public Policy and Legislation.

A Committee on Nominations.

A Committee on Medical Defense.

A Committee on Cancer.

A Committee on Memoirs.

A Committee on Hospitals.

A Liaison Committee.

A Committee on Education.

The members of these committees shall be appointed by the Board of Trustees when not otherwise provided for in these by-laws.

Special committees may be appointed from time

to time by the president to carry on special activities.

The terms of service of committeemen shall be for a period of from one to three years. The Board of Trustees is instructed to make the appointments for such a period of years that the terms of not more than two members will terminate each year.

The purpose of the House of Delegates is to promote the efficiency of committees by having experienced active members at all times in the service of the Association.

Section 1, Chapter VI, of the By-Laws (page 12) reads as follows:

The president shall preside at all meetings of the Association, shall appoint all members of committees not otherwise provided for.

The committee approved of the amendment to the constitution—the vote on the constitution amendment to be cast next year.

At the request of Dr. K. S. Howlett, who proposed the amendment last year, the Committee on Amendments recommended that no action be taken on the amendment which would eliminate past presidents from the membership of the House of Delegates. Moved, seconded, and carried that the committee's recommendation on this matter be adopted.

#### REPORT OF COMMITTEE ON RESOLUTIONS

DR. NEWMAN: The Committee on Resolutions has one little resolution here that was handed to me this morning.

"Be it Resolved, That the House of Delegates of the Tennessee State Medical Association recommend to their representatives on the State Board of Health that the present investigation of Bang's disease in the state be expended to include undulant fever in the human."

After discussion the motion carried to approve the resolution.

Meeting adjourned at 2:45.

#### THURSDAY MORNING, APRIL 11, 1935

Speaker Zemp called the House to order at 9:30 A.M.

#### AMENDMENTS TO BY-LAWS

Report of the Committee on Amendments was considered, moved, seconded, and carried that the amendment increasing the annual dues from \$4.00 to \$6.00 be approved.

Amendment to Chapter VIII, Section 1, of the By-Laws was approved, changing the method of appointing standing committees.

#### REPORT OF THE DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION

At the suggestion of the committee, the secretary was asked by the House to publish report of the A. M. A. delegates as soon as expedient.

#### RESOLUTION REGARDING BANG'S DISEASE AND UNDULANT FEVER

The resolution presented yesterday requesting the Department of Health to extend its investigation of Bang's disease to include undulant fever in the human was again voted on and again adopted.

#### TENNESSEE EMERGENCY RELIEF ADMINISTRATION COMMITTEE

Following the suggestion of President Manier it was moved, seconded, and carried that the Board of Trustees select a committee to represent the Tennessee State Medical Association in dealing with the Tennessee Emergency Relief Administration to make schedules and regulations for management of medical care of persons on TERA relief rolls. This committee is to represent the Tennessee State Medical Association and report to the Board of Trustees.

#### ELECTION OF OFFICERS

The Nominating Committee called attention to the fact that its report did not prevent nominations from the floor. After careful consideration they offered as nominees for president: Dr. John Steele, Chattanooga; Dr. J. A. Blair, Apison; and Dr. W. C. Stansberry, Charleston. No other nominations were made. Ballots were cast and Dr. Steele was declared elected.

Other offices were filled by the election of persons nominated by the committee:

##### Vice-President

Middle Tennessee—Dr. W. W. Wilkes, Columbia.

East Tennessee—Dr. Chas. Robt. Thomas, Chattanooga.

West Tennessee—Dr. Nicholas Walker, Dyersburg.

##### Speaker of the House of Delegates

Dr. E. R. Zemp, Knoxville.

##### Secretary-Editor

Dr. H. H. Shoulders, Nashville.

##### Trustee

Dr. Franklin H. Bogart.

##### A. M. A. Delegate

Middle Tennessee—H. H. Shoulders.

##### A. M. A. Alternate

Middle Tennessee—J. O. Manier.

#### MEDICAL EXAMINING BOARD

##### West Tennessee

W. C. McRee, Trenton.

J. A. McIntosh, Memphis.

J. W. McClaran, Jackson.

Nicholas Walker, Dyersburg.



## Middle Tennessee

J. K. Blackburn, Pulaski.  
W. S. Rude, Ridgetop.  
W. G. Kennon, Nashville.  
W. H. Avery, Shelbyville.

## East Tennessee

A. M. Patterson, Chattanooga.  
Lee Gibson, Johnson City.  
Hiram Laws, Chattanooga.

## NURSES BOARD OF EXAMINERS

## East Tennessee

Ralph Monger, Knoxville.  
E. A. Gilbert, Chattanooga.

## Middle Tennessee

W. F. Fyke, Springfield.  
Robert Sullivan, Nashville.

## West Tennessee

J. D. Brewer, Dyersburg.  
Battle Malone, Memphis.

## STATE BOARD OF HEALTH

## East Tennessee

R. B. Wood, Knoxville.  
C. P. Fox, Greeneville.  
W. E. Anderson, Chattanooga.

## Middle Tennessee

E. M. Fuqua, Pulaski.  
J. S. Freeman, Springfield.  
M. L. Hughes, Clarksville.

Dr. Steele was introduced and addressed the House briefly. Drs. Laws and Wood were appointed to conduct Dr. Steele to the general assembly and introduce him as the new president.

## NEXT MEETING PLACE

On motion and seconded it was voted to hold the next meeting in Memphis.

A vote of thanks was extended the Nashville Academy of Medicine and Davidson County Medical Society for the many courtesies extended during the meeting.

## LIAISON COMMITTEE AND BOARD OF HEALTH

Following the suggestion made in President Manier's address, and after much discussion, the following resolution was carried by vote:

"BE IT RESOLVED, That the House of Delegates directs the Liaison Committee to act in an advisory manner to the Board of Health as now constituted, in the matter of formation of all policies."

## SALES TAX ON SERVICE

Moved, seconded and carried that the Legislative Committee be instructed to oppose a bill now pending in the legislature, which, if passed, would establish a three per cent service tax on all professional men.

The meeting adjourned at 10:45 A.M.

## *Index to Proceedings of the House of Delegates*

|                                                  |               |
|--------------------------------------------------|---------------|
| Appointment of Committees .....                  | 315           |
| Nominating Committee .....                       | 315           |
| Report of Treasurer .....                        | 315           |
| Report of Secretary .....                        | 319           |
| Report of Councilors .....                       | 331           |
| Standing Committee Reports—                      |               |
| Scientific Work .....                            | 320           |
| Legislative .....                                | 321           |
| Medical Education .....                          | 322           |
| Woman's Auxiliary .....                          | 323           |
| Liaison .....                                    | 323           |
| T. B. Hospital .....                             | 324           |
| Hospital .....                                   | 324           |
| Cancer .....                                     | 324           |
| Medical Defense .....                            | 332           |
| Report of A. M. A. Delegate .....                | 325-335       |
| Address by Dr. Austin Hayden .....               | 325           |
| Discussion of Colored Doctors' Affiliation ..... | 328           |
| Proposed Amendment to Constitution .....         | 329           |
| Proposed Amendment to By-Laws .....              | 318, 331, 335 |
| Address by President Manier .....                | 329           |
| Elections of Officers—                           |               |
| Councilors .....                                 | 334           |
| General Election .....                           | 335           |
| Report of Reference Committees—                  |               |
| Committee on Report of Committees .....          | 334           |
| Report of Officers .....                         | 334           |
| T. E. R. A. ....                                 | 335           |
| Amendments .....                                 | 334           |
| Resolutions .....                                | 335           |
| Meeting Place .....                              | 336           |
| Liaison Committee and Board of Health .....      | 336           |
| Sales Tax on Services .....                      | 336           |



## BOTULISM\*

J. LAWRENCE COCHRAN, B.S., M.D., Jackson

THIS SUBJECT was chosen not because of the prevalence of this disease, but conversely because of its rarity. However, when a sporadic outbreak does occur, it strikes with the terror of a thunderbolt out of a clear sky. The mortality is exceedingly high—sixty-six per cent in the United States and Canada—and it is only after the first few hours, or usually at the time the patient first summons the physician, that specific therapy can be effectively administered.

The disease is characteristically sporadic, and several victims are usually stricken simultaneously. This malady is no respecter of person, age, sex, social status, place, or time. The symptomatology and physical findings involve so many parts of the body that even those among you who limit yourselves to a specialty in any particular field may be confronted with a case and thus be forced to meet the exigency of making a differential diagnosis or prescribing treatment. For these reasons, it is expedient that we brush the cobwebs off our memories and for a few moments give consideration to a brief resume of the literature on this subject.

## HISTORY

The first description of the disease was made by Kerner in 1820. But it was not until 1896 that van Ermengen, a Dutch bacteriologist, first isolated the deadly bacillus which proved to be the etiological factor, and which fulfilled Koch's four postulates. The specimen from which he isolated the *Clostridium botulinum* was a ham which caused fifty cases of botulism in a small town in Belgium.

From 1899 to 1932 approximately 200 outbreaks were reported in the United States and Canada, but only about thirty-eight per cent of them were proved bac-

teriologically. Most of these outbreaks occurred in Western States—notably California, Washington, and Colorado.

## THE CLOSTRIDIUM BOTULINUM

As the name "*Clostridium*" signifies, the organism is a sporebearing, anaerobic bacillus. It is widely distributed in the soil. According to the best investigators, it requires a temperature of 230 degrees Fahrenheit or 110 degrees Centigrade for five hours to destroy the spores. Like tetanus and diphtheria, the symptoms of the disease are caused by a true exotoxin elaborated and excreted by the bacillus itself. The disease has been produced experimentally by administration of minute amounts of this toxin both by mouth and also by hypodermic injection to many experimental animals: rabbits, guinea pigs, chickens, and monkeys.

Let me again emphasize that the disease is due to the exotoxin of the *Clostridium botulinum*, and symptoms are *not* due to direct infection as is the case with a great many organisms of the salmonella or paratyphoid group. These latter cases are food infections, while botulism is a true intoxication. Food infections frequently terminate by septicemia, which is not the case in botulism.

In the United States and Canada by far the greatest number of outbreaks were due to plant foods, although animal products were accused in about sixteen per cent of the outbreaks. The ratio of plant foods to meat products as a causative factor in botulism in Europe is just about the reverse of the ratio in the United States and Canada. In other words, animal products, especially sausages, predominate as the type of food which produces most of the cases in Europe. Also in the United States and Canada home-canned fruits and vegetables produce the disease more frequently than commercially-canned products.

The presence in canned materials of gas

\*Read before the Tennessee State Medical Association, Nashville, April 9, 10, 11, 1935.

bubbles, rancid odor, and mushy appearance of the solid particles should cause one's suspicion of botulism. Since the disease is produced by the exotoxin, fresh fruits and vegetables which may contain the spores are not likely to produce the disease.

The toxin is readily destroyed by heat; but unless a high-enough temperature over a long-enough period of time is applied to cause the death of the spores, the toxin can again be elaborated by the spores. This fact will be brought out a little later in the case report at the conclusion of this treatise.

#### PATHOLOGY

According to MacCallum, the toxin is absorbed from the intestinal tract and preys upon the central nervous system, producing numerous small thrombi in the vessels of the brain, especially at the base of the brain. There are also hemorrhages in the meninges. The toxin has been demonstrated in the peripheral blood, and there is some evidence that this toxin is neutralized by the central nervous system itself. All authors agree that the action is on the peripheral nerve endings, and the sites of the lesions are apparently located in the myoneural junctions. The nuclei in the central nervous system that are seats of most of the lesions do not give rise to the most marked clinical manifestations, as it is known that the disturbances are practically altogether motor in type.

Physiologically there is certainly a motor disturbance of all the cranial nerves—except the olfactory and optic, which are nerves entirely sensory in function.

#### SYMPTOMS

About eight (8) to twenty-four (24) hours after ingestion of the botulinus toxin, there are dizziness, drowsiness, lassitude, and general malaise. However, symptoms may appear as early as four (4) or as late as forty-eight (48) hours after the infected food has been eaten.

Flatulence is usually present.

Constipation is the rule in these cases.

The temperature is usually subnormal, ranging from ninety-six degrees to ninety-eight degrees Fahrenheit.

Visual disturbances are another constant symptom. There are usually fixation of the orbits, dilation of the pupils, and sometimes diplopia.

Respirations are slow and usually dyspneic.

The heart is rapid; but there is no appreciable alteration of the blood pressure.

The most distressing symptom from the patient's point of view is the dysphagia accompanied with a feeling of constriction within the throat. Liquids or foods are usually returned through the nose.

The dysphagia is so distressing to the patient because of the extreme dryness of the mouth. This symptom is invariably present.

There may also be difficulty in speaking.

The patient himself has a woebegone expression and is very solicitous of his condition. He is fearful of impending death.

A very striking feature of the disease is the almost complete absence of sensory disturbances. The entire physical findings and symptomatology are altogether motor.

#### DIFFERENTIAL DIAGNOSIS

*Diphtheria*—Diphtheria of the membranous croup variety may be considered, because, as has already been stated, liquids are returned through the nose. But the absence of the membrane and the subnormal temperature should be sufficient to eliminate this possibility.

*Belladonna poisoning*—After a cursory history and inspection because of the dryness of the mouth, the dilation of the pupils, and the rapidity of the pulse, the physician usually makes careful inquiry into exactly what medicines have been taken recently. This consideration is certainly justified as all these symptoms are very characteristic of overdosage of belladonna or its alkaloid, atropine. However, since cases of botulism rarely occur singly, and there is no increase in temperature, and the respiratory rate is slow, this possibility can usually be eliminated.

*Encephalitis lethargica*—The ophthalmic manifestations may lead the physician to suspect encephalitis lethargica, and it is



sometimes difficult to rule out this possibility. But a careful history, absence of sensory disturbances, absence of fever, and no disturbance in consciousness are ample to eliminate this possibility.

*Intestinal obstruction* — The flatulence and constipation may evoke this consideration. However, absence of pain, subnormal temperature, absence of abdominal rigidity, plus the ophthalmic and laryngic symptoms and findings readily rule out intestinal obstruction.

*Food infection* — Food infections due to organisms of the salmonella or closely-related groups are the chief diseases to be eliminated:

|                     | BOTULISM                                                                                  | FOOD INFECTION                                                      |
|---------------------|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| ETIOLOGY            | Toxin of <i>Clostridium botulinum</i> —preformed in the food                              | Direct infection with salmonella group or allied organisms          |
| TYPE OF FOOD        | Usually plant—but may be any type of food<br>United States and Canada; converse in Europe | Chiefly meat, occasionally milk                                     |
| SEASON              | No particular season                                                                      | Usually summer                                                      |
| TEMPERATURE         | Usually subnormal                                                                         | Slight elevation                                                    |
| OCULAR DISTURBANCES | Present and marked                                                                        | Absent                                                              |
| BOWELS              | Constipation                                                                              | Diarrhea                                                            |
| PARALYSIS           | Present—and ranges from muscular weakness to muscular paralysis                           | None                                                                |
| CONVALESCENCE       | Slow                                                                                      | Rapid                                                               |
| MORTALITY           | Sixty-six per cent in United States and Canada                                            | One and one-half per cent at most (even in most virulent outbreaks) |

#### CLINICAL COURSE

If death ensues, it usually does so within four or five days. If the patient survives for ten days, he usually recovers and is left without permanent stigma or disability; but recovery is slow and requires several weeks.

The direct cause of death is respiratory failure.

#### TREATMENT

Within the first few hours, the specific antitoxin should be administered if feasible. However, it can be procured only from the Hygienic Laboratory at Washington, D. C., the Board of Health of the City of New York, and one commercial laboratory located in Kansas City, Missouri. Because of the rarity of the disease, commercial laboratories do not find it profitable to manufacture this product and distribute it generally to their branch warehouses. Then, too, it has been conclusively demonstrated that unless the specific antitoxin is administered very early in the disease, it is practically valueless. Therefore, from our local standpoint, it is not feasible to attempt to procure this antitoxin, because even with our very rapid means of transportation the antitoxin would not reach us until its chances of being effective are very meager indeed. Therefore, so far as we here present are concerned, specific therapy is entirely out of the question. This statement, however, is purely a personal opinion.

Hence, if an outbreak of botulism should occur in any of our respective communities, we would be forced to meet the exigency with symptomatic treatment only. Evacuation of the contents of the stomach should be accomplished first. A gastric lavage with a stomach pump is the method of preference; but if this should be impracticable, medicinal emetics should be administered.

A brisk saline purge should be attempted, but if the dysphagia has developed to such an extent that swallowing or retention of same is impossible, hypertonic enemas are the next best thing.

For respiratory failure, any of the respiratory stimulants as adrenalin, caffeine, camphor, or alpha-lobeline are useful.

Any derivative of belladonna or hyocyanus should *not* be used, as this would cause an increase of the dryness of the mouth—and thus add to the patient's discomfort.

It has been shown experimentally that anesthesia or hypnosis delays the onset of

toxic symptoms and lessens the severity of the disease. But if this method of treatment is decided upon, we must carefully consider this fact: the already low respiratory rate will be further decreased by administration of our present-known hypnotics of either the opium or barbituric acid group. Obviously, inhalation anesthesia is not a safe expedient if administered over a period of more than a few minutes to a very acutely-ill patient.

Supportive treatment of glucose and fluids intravenously or by hyperdermoclysis may tide the patient over until he takes a turn for the better, and the physician is justified in giving a prognosis of ultimate recovery.

#### CASE REPORT

February, 1933.

While Public Health Director of Unicoi County, a small mountainous county in the extreme eastern part of Tennessee, I was summoned to a miner's cabin one wintry night. A physician of near Jonesboro, Tennessee, had been attending the cases and suspected a disease of a contagious nature. Due to the inclement weather, the attending physician himself became ill and could not meet me in consultation; but he requested me to investigate the source of infection, and if necessary take steps to prevent its further spread.

When I arrived, three persons had been stricken with a rare malady, a mother and two of her children. At the time of my arrival at this humble domicile, one of the two children was lying a corpse. His little sister was still alive, but was complaining of inability to swallow and dryness of her mouth.

Physical examination revealed the following findings: temperature, 97.6; pulse, 130; respirations, 12 per minute and shallow; both orbits fixed; both pupils dilated and no reaction to light; abdomen flatulent. The attending physician had already administered brisk purgatives which up to this time had been ineffectual. This case

also terminated in death on the next day.

The mother of the children showed practically the same clinical picture as this child presented, but the findings were less pronounced.

As is characteristic of mountain people, a goodly number of neighbors had assembled at this humble cottage of this indigent miner into whose family "Zeus had hurled a thunderbolt." Immediately, investigation was made into suspected food. The father stated that all of his family had partaken of a portion of the liver of a freshly-killed but poorly-developed hog. However none remained, and therefore no specimen of this liver could be obtained for examination. He also stated that about the only other food that his family had eaten the day previously was beans, however, the father ate none of these beans. A portion of these beans was still setting in the cupboard. They had been obtained in the dried state from a large bag at the mine commissary and had been cooked at home. All other foodstuffs which had been prepared for their table use for the preceding thirty-six hours had been either completely consumed or destroyed. The beans which remained had been cooked some thirty hours at the time of my visit. Doubting that I would be able to find anything of diagnostic importance in the beans, but still willing to utilize the last vestige of material remaining that might possibly be used in establishing a correct bacteriological diagnosis, I decided to submit a specimen of the beans to a laboratory. As I did not bring a suitable sterile container, I was forced to improvise and make use of such material as was available. I requested a small bottle with a stopper. I have tried to depict the setting of this scene, and perhaps you have already guessed that I was given a bottle which had been used to dispense some of the famous East Tennessee corn liquor. This particular type of small bottle was known colloquially as a "screw-top" and is identical with our pre-Rooseveltian "short-pint" contain-



er. I removed the stopper and boiled both the bottle and the stopper on the kitchen stove. After they had cooled, I poured the beans and some of the "potlikker" into the bottle and screwed the top on as aseptically as possible.

The first thing the next morning I carried the specimen to the East Tennessee Branch Laboratory at Johnson City. Within a few days the director of this laboratory, a very competent and conscientious bacteriologist, rendered me a positive report of "*Clostridium botulinum*."

Shortly after the death of the little girl already referred to, the attending physician made arrangements for admittance of the mother to the Appalachian Hospital at Johnson City. She was admitted to that hospital as a service case. Treatment there was purely supportive and symptomatic. After remaining in the hospital for several days, she was discharged and allowed to return to her mountain hovel from which the "Grim Reaper" had exacted his toll of two of her children. Within several weeks, she recovered completely after an uneventful, but slow, convalescence.

#### DISCUSSION

DR. W. R. CATE (Nashville): Mr. President, Members of the Association: Dr. Cochran has indeed performed a real service in bringing to our attention this morning the question of botulism. True it is that botulism is a relatively rare condition, but he has opened up one of the most important fields for our consideration, namely, the relationship of food to health and disease. Obviously it is impossible to go into this subject to any extent, nor is it my purpose to make any comments on the question of botulism. Dr. Cochran has forcefully and clearly presented this question.

But I would like to make a few remarks relative to foods in general. There is not one of us who does not have to consider the question of food in relationship to health, in relationship to disease, many times each day. The question can readily be carried forward under five subheads, and I would simply like to throw these out as suggestions that they might stimulate further study on the part of each one of this important question.

First, the relationship of normal food to a healthy

body. What is a normal diet for a normal individual? Nothing further will be said along that line.

The second subhead is this: normal food and a normal body, but an unusual reaction on the part of the body to the normal food. Comprised under this heading are the widespread allergic reactions of individuals—urticaria, asthma, migraine, and a number of other conditions. Here, too, will be included that wide group of conditions of unbalanced diets, normal foods, normal individuals, but an unbalanced diet inducing rickets, scurvy, malnutrition, beriberi — a wide variety of conditions which we are meeting with ever-increasing frequency.

The third grouping is the relationship of normal food to the abnormal body; in other words the adjustment of diets to our patients. We have typhoid fever. What is a proper diet for typhoid? What is a proper diet for a nephritic patient, a cardiac patient, pneumonia? We are faced with this problem daily in the hospitals, in the home, and we pay all too little attention to this very important question, and oftentimes the tide is turned against our patients simply because we do not give this factor the attention that it should receive.

The fourth subject which we should consider, and which in part is touched on by the paper presented by Dr. Cochran, is that of food infections. The importance of this question in recent years has been attested by the interest on the part of our national government in pure food regulations, and on the part of states and municipalities passing various laws relative to hotels and restaurants in the preparation and care of food and the people who handle food. It is a very important question, one in which all too little interest is taken.

In one of our hospitals here last week there were admitted fourteen members from one group with a very acute food infection, rather severe and intense. There was, year before last, a group of forty-five members of one convention in this city taken very acutely ill by food infection. We have here the question of contaminated milk and its relationship to typhoid fever, the question of the transmission of tuberculosis by contaminated milk, the question of undulant fever as transmitted by infected milk, the question of tularemia as carried by infected rabbits, and all the other host of food infections from the standpoint of water, contaminated milk, and other food supplies; foods that might come to the home pure but be contaminated by those who prepare the food, by hotel attendants, by restaurant attendants. This question is one that is forcing itself more and more to the front as a public health measure and certainly cannot receive too great emphasis on the part of the public

health men and on the part of the local profession.

The fifth subhead is the one in which falls the subject presented to us this morning by Dr. Cochran—namely, food intoxication. There is only one outstanding example of this—namely, botulism, the symptoms of botulism being caused entirely by a toxin preformed in the food and taken into the system and not by the organism itself.

I hope that this paper will serve to bring to our attention more forcibly this very important question.

DR. J. LAWRENCE COCHRAN (closing): I wish to thank Dr. Cate for his additions to my paper in order that it may be better understood. As he stated, there is only one outstanding classification of true food intoxication and that is botulism. This disease is so rare that it frequently escapes the attention of all of us; but if it does come we should be able to recognize it, and thus institute symptomatic treatment as quickly as possible, investigate the source of infection, and take steps to prevent its further spread.

I thank you.



## PRESIDENTIAL ADDRESS\*

ARTHUR G. JACOBS, M.D., Memphis

WE HAVE among our members several men who rightly rank as pioneers in pediatrics in the State of Tennessee. These are the men who 30 years ago blazed the trail for infants and children in this section of our Southland.

I mention as among the earliest of Tennessee's pediatricians Dr. Owen Wilson of Nashville, Dr. Bloomstein of Nashville, Dr. Oliver W. Hill of Knoxville, Drs. E. C. Mitchell, Eugene Rosamond, and the speaker of Memphis.

Let me attempt to visualize the state of affairs that confronted these men thirty years ago. Every year, beginning about the middle of May, widespread epidemics of gastrointestinal diseases in the form of gastroenteritis, ileocolitis, cholera infantum, and dysentery appeared.

At times these epidemics were most severe, had a high mortality rate, and continued throughout the summer. Baby after baby was stricken with vomiting, bloody diarrhea, high fever, and dehydration, followed in a vast number of cases by death. Sometimes the epidemics were not so serious, but the people and the profession had grown to fear them, and the advent of summer in Tennessee was a cause of anxiety bordering on terror.

These epidemics were milk-borne, usually the dairies were for the most part filthy beyond description, flies annoyed the cows, and manure piles were in close proximity to the barns, and the bacterial count of the milk used for infants and young children showed 500,000 to 1,000,000 per c.c., with an alarming proportion of pathogenic organisms. The milk was often delivered in large cans into which a dipper was thrust, withdrawn, and emptied into a pitcher. Even ordinary cleanliness was seldom used.

Drs. E. C. Mitchell, Eugene Rosamond, and myself established the first medical

milk commission in Tennessee under the auspices of the Memphis and Shelby County Medical Society, and procured certified milk for infants and children after a rather difficult fight. At that time not only was the milk unfit for human use, but it was being fed to the babies in improperly balanced proportions.

It became our duty not only to secure pure milk, but to adjust the formulas as well. Not only did certified milk greatly reduce gastroenteric infection, but it brought with it a remarkable improvement in the entire milk supply. Dairies were cleaned up, utensils sterilized, cows inspected, and care taken in the production and delivery of the milk. So that now it is no longer imperative nor really necessary to use certified milk, but safe to employ it pasteurized.

Personally I always boiled the certified milk before using, and have seldom used it raw.

At that time it was customary to treat diarrheas with purgation (often daily) and continued starvation, using various cereal waters. This treatment, combined with astringents, was to be continued until the diarrhea ceased. As a rule, the diarrhea did not cease until after the death of the child. Naturally, this treatment was as disastrous to the baby as the original infection. Fortunately, we learned to discontinue the use of purgatives and to feed the baby, with, of course, surprisingly good results.

Infants who were not fed on cow's milk often received sweetened condensed milk, malted milk, and Nestle's Food, and while such feeding was far safer than infected cow's milk, it was given without vitamins and produced flabby, fat, mushy babies with poor vitality. Especially is this true of sweetened condensed milk. Such babies frequently developed scurvy, rickets, malnutrition, and marasmus, and many of them passed away as the result of inter-

\*Read before Tennessee State Pediatric Society, Nashville, Tenn., April 8, 1935.

current infection. Little was known about vitamins and less understood. And the breast-fed baby, what about him? He lived through it all and is with us today.

Thirty years ago we had disastrous epidemics of diphtheria, frequently involving a large number of cases, with a frightful death rate. When antitoxin first came into use, it was not administered in such large doses as we use today. Five thousand units was considered a large dose and came in a large package (about 100 c.c.). Frequent repeated doses were given at twelve-hour intervals, rather than one large dose of 20,000 units of concentrated antitoxin as we use today. At first the limitations of antitoxin and its reactions were not well understood. Prejudice arose against it because of its reactions. It was often given too late, and cardiac paralysis with death ensued after apparent local improvement. Such deaths were falsely attributed to the antitoxin and brought forth disastrous opposition, not only on the part of the laity, but often on the part of the profession itself. Such unfortunate opposition delayed its use considerably.

Malaria and typhoid fever were everywhere prevalent in Tennessee as a result of deluges of mosquitoes, unscreened houses, unsanitary drinking water, infected ponds, cisterns, lakes, and rivers. All of this has been largely corrected by our public health authorities with cooperation of the profession. Cerebrospinal meningitis produced deadly results in those days, and we were powerless to prevent, control, or treat it.

At the beginning of this century not more than eight or ten men practiced pediatrics exclusively in this country. Every general practitioner treated infants and children along with adults, without, in many instances, appreciative understanding of the special features of infancy and childhood, and of the differences in the physiology, pathology, and symptomatology that exist between infancy and adult life. Any attempt at that time to place diseases of children under a separate category met with

definite disinterest if not opposition from the profession at large.

Among the handful of Americans who first had the temerity to adopt pediatrics as their exclusive work may be mentioned Holt, Jacobi, Kerley, and Rotch of New York, Abt of Chicago, Forchheimer of Cincinnati. Europe, however, had displayed an earlier interest in pediatrics. Especially is this true of Germany and Austria. In a preface to his work, "Lehrbuch der Kinderkrankheiten," in 1882, Adolf Baginsky, Professor of Diseases of Children at Friedrich-Wilhelms Universität zu Berlin, makes this statement:

"Diseases of children in a relatively short time have made extensive progress in their field. Because of the anatomical and physiological differences between the child and adult, the child reacts differently to pathological irritation. These differences give childhood disease a characteristic course and behavior. There is a difference in the pathological-anatomical changes, in the fever course, in complications, and in nerve reactions. This is also true with regard to drugs and other therapeutic procedures."

In order to get an approximately fair idea of the progress in pediatrics in the last thirty years, I submitted a questionnaire to certain institutions, including the Children's Bureau of the United States Department of Labor. Communication was had with the John McCormick Institute for Infectious Diseases, the American Public Health Association, the Hospital Library and Service Bureau, the American Child Health Association, the Metropolitan Life Insurance Company, the American Medical Association, and others.

I have time to submit only a part of the results of this inquiry.

Question 1—In what institution was a separate department of pediatrics first established, and when?

The American Hospital Association replies that it was probably first established in the Pennsylvania Hospital in Philadelphia the latter part of the last century. Garrison, in Abt's "Pediatrics," states that clinical instruction in pediatrics was first



introduced by Rosenstein in the Lying-In Hospital in Stockholm, Sweden, in 1761.

Question 2—How many institutions in this country have separate departments of pediatrics?

The American Medical Association gives 627 general hospitals with special pediatric departments. The White House Conference on Child Health and Protection reports sixty-three medical schools with pediatric departments.

Question 3—When and where was the first infant welfare station established, and how many of these now exist?

In 1889, Dr. Henry Koplik established the first consultation center for mothers and children in the Good Samaritan Dispensary in New York City. In 1893, Nathan Straus established milk stations for the free distribution of pasteurized milk in New York, and these later became centers. The White House Conference on Child Health and Protection showed that in 1930 there existed 1,511 infant welfare stations in the United States.

Garrison's "History of Medicine" claims that infant welfare activities originated in France in the foundation of creches or day nurseries by Marbeau in 1844.

Question 4—What was the mortality rate from, and the incidence of, diphtheria before the use of antitoxin, and what is it now?

The Metropolitan Life Insurance Company gives the following for New York City: Antitoxin was first used in New York in 1895. Mortality rate per 100,000 population from diphtheria:

|      |       |      |
|------|-------|------|
| 1895 | ----- | 127  |
| 1896 | ----- | 105  |
| 1897 | ----- | 86   |
| 1899 | ----- | 57   |
| 1900 | ----- | 66   |
| 1934 | ----- | 1.38 |

According to the American Hospital Association, prior to 1900, it is impossible to give even an approximate idea of the incidence of diphtheria before the use of antitoxin. In any event, it was large, and mortality unusually high. Haggard states that fifty per cent of the patients with diphtheria died in those times.

Question 5—When and where was toxin-antitoxin first administered? Same of toxoid?

Toxin-antitoxin mixtures for preventive inoculation against diphtheria in man were first used by Behring in 1913. Toxoid was introduced by Ramon in 1923.

Question 6—What was the mortality of cerebrospinal meningitis before the use of antimeningococcic serum, and what is it now?

Jochman and his colleagues first used this serum in 1905-1906. The United States Census Reports show that the annual average mortality per 100,000 population in the registration area ranged from 2,765 in the period of 1901 to 1905—2,832 in 1931—to 1,482 in 1933.

Zinsser and Bayne-Jones state that the use of antimeningococcic serum reduced the mortality rate of cerebrospinal meningitis from seventy per cent to thirty per cent.

Question 7—What was the incidence and mortality rate of gastrointestinal diseases in infants and children thirty years ago, and what now?

The American Hospital Association states that diarrhea and enteritis declined from 132.2 per 1,000 infant population in 1900 to 16.4 per 1,000 in 1932 in babies under one year of age.

The Metropolitan Life Insurance Company gives the mortality rate of gastrointestinal diseases under two years of age in New York City as follows:

|      |       |      |     |       |
|------|-------|------|-----|-------|
| 1903 | ----- | 30.7 | per | 1,000 |
| 1904 | ----- | 35.6 | per | 1,000 |
| 1933 | ----- | 2.5  | per | 1,000 |

Question 8—How many children's hospitals existed thirty years ago, and how many now?

The American Hospital Association states that the number of children's hospitals thirty years ago was few, that they were widely scattered and numbered not over a half dozen.

In the hospital number of the American Medical Journal for 1934, fifty-eight children's hospitals are listed as accepted institutions.

Question 9—How many children's dis-

pensaries existed thirty years ago, and how many now?

The American Hospital Association states that it has no available information to answer this question. The American Medical Association gives the number of children's dispensaries now existing as approximately 548, of which 65 are O. P. D. and special hospitals for children.

Question 10—What was the general infant mortality rate thirty years ago, and what is it now?

The Metropolitan Life Insurance Company gives the following figures for New York City. Infant mortality rate per 1,000 live births in New York City:

|      |       |     |
|------|-------|-----|
| 1904 | ----- | 162 |
| 1905 | ----- | 159 |
| 1934 | ----- | 52  |

As a result of pediatric stimulus in the last thirty years there has been achieved a marked reduction in infant mortality, definite improvement in child health, and an accumulation of scientific facts concerning the physiology, anatomy, pathology, immunology, prophylaxis, and treatment of disease.

School hygiene and health education in schools have been introduced; infant welfare stations, free clinics for babies, and open-air camps have been established; and the mental as well as psychic conditions of the child are being investigated.

The proper feeding and care of infants and children have been developed and preventive medicine has had far-reaching results in the pediatric field. The prevention and cure of rickets and scurvy through the use of vitamins, of cretinism and goitre through hormones, the prevention of diph-

theria, pertussis, and typhoid fever through inoculation, the use of Dick scarlet fever antitoxin in its field, the prophylaxis against tuberculosis and malaria, the use of convalescent serum, of Kolmer's preventive against infantile paralysis—all evidence what has been done largely, if not entirely, in our domain.

This is a breath-taking advance in so short a time, but much remains to be done before every boy and girl has anything approaching a fair start in life. While it is true that the infant death rate has been definitely reduced, it is also true that 125,000 babies die every year before they reach one year of age.

While proper care and feeding are being used, and hormones and vitamins freely adopted, too many children still show the results of dietary insufficiency and faulty hygiene, and far too many glaring defects that should not be there stare us in the face.

To those of you who are somewhat wearied by my dissertation I would say with Lady Godiva, who rode naked through the streets of the city, as she approached her destination, "Gentlemen, I am nearing my clothes (close)."

There is possibly no other division of men in this or any other profession in a position to accomplish more good than the pediatrician. They have done exceeding well and have reason to be justly proud of what they have accomplished; they have made their influence felt in the land, have stamped their impress on the communities they have served, but there is far, far more for them to do, and I have faith in the thought that they will ultimately attain that goal.



## A FURTHER REPORT ON THE SURGICAL TREATMENT OF RETINAL DETACHMENT\*

E. C. ELLETT, M.D., and R. O. RYCHENER, M.D., Memphis

FOUR YEARS ago before this group we reviewed the status of the surgical treatment of retinal detachment, describing the technique advocated by Deutschmann, Gonin, and Sourdille, and recording the results of our efforts in nine cases treated by the procedures of the latter two, which results were uniformly disappointing, although very slight increase in visual acuity was recorded in three cases. In our minds, simple reposition of the retina was no cause for elation; better vision was the goal we sought.

Since then the medical literature has been filled with reports of various other techniques of surgical treatment, and with improvements in technique, operations for retinal detachment have become more frequent. Happily, the results have justified these procedures, and we have been encouraged to continue our efforts until we too are convinced that the occasional brilliant recovery is worth the discouragement encountered in the majority of cases.

We are not prepared to explain why some cases respond perfectly whereas others, which look ideal for surgical treatment, get no result at all. Experience has taught us, however, that certain factors are of value in estimating the result. Cases treated early, within the first few weeks rather than months, respond best, while locating and sealing the retinal tear is most important. This need not necessarily be by direct application of the instrument to the tear, as a barrage of contacts about the rent will often be sufficient to seal it to the choroid. In cases where no hole can be found we may be guided to its location by the history of where flashes of light or a visual field blur were first noted, and thus apply our surgical procedure to the origin of the

pathology. Some disappointments may be avoided if it is possible to investigate the macula, as no increase in visual acuity should be expected if macular disease is present.

Successful results depend on two essential points, the elimination of the subretinal fluid and the formation of a plastic exudate which will bind the retina to the choroid as it falls back in reposition against it. Simple drainage gives only temporary improvement and in itself is of little value; however it is the most important step in any of the many procedures advocated, as without it the effect of the various cauterizing and coagulating contacts is lost.

Since our previous paper we have read of the technique of Guist, who made multiple sclerectomies with the trephine and applied the potassium hydroxide pencil with weak acetic acid as a neutralizing agent. One successful result was achieved by us with this method. Safar, Weve, Larsson, Walker, and others have developed various procedures with diathermic coagulation and may be said to comprise the diathermy school. It seems that the majority of good results are now reported from some method depending on diathermy as the exciting agent. Lately, Vogt has reported cures with the use of the cathode needle of the old electrolysis or galvanometer apparatus. With this last we have had no experience.

Since our report of 1931 we have surgically treated twenty-five patients with retinal detachment. Many of these cases were old or of such vast extent that we felt the prognosis was hopeless, but we have denied no one their chance if they have desired to take it, being very frank and guarded in our prognosis.

Of these, nine cases were treated by ignipuncture, the method of Gonin, and eight were unimproved, while one achieved a perfect recovery.

\*Read before the Tennessee Academy of Ophthalmology and Otolaryngology, Nashville, April 8, 1935.

## REPORT OF CASES

*Case I*

A. L. W., colored girl, age 16. Developed sympathetic ophthalmia and total detachment of the retina in the left eye four weeks after the right eye was injured and ten days after its enucleation. Rest in bed, pilocarpin sweats, repeated scleral incisions and subretinal drainages proved unavailing and when the vision became nil, Gonin ignipunctures through the two main lobes of the detachment were made. Improvement was gradual to 6 6 and J 1, which has been maintained for three years. There is extensive evidence of intense chorioretinitis throughout the fundus which is interpreted as probably due to the ravages of the sympathetic uveitis. It may be that the eye might have improved without operation, as we so often see such improvement in cases of retinal detachment associated with pregnancy, but there was certainly nothing at the time of operation which pointed to any such improvement. The iris was not affected any time during the process.

Three cases were treated with the potassium hydroxide acetic method of Guist. Two of these were unimproved, one materially improved.

*Case II*

Miss E. R., age 50. Always highly myopic. In 1931, lost the right eye through retinal detachment following injury. Two years later vision was lost in the left eye, due to a high disinsertion or dialysis of the retina across the upper third of the equator of the globe. Rest in bed for a month gave no visible improvement. Three months after the detachment the sclera was exposed across the upper third, twenty-one trephine openings made, the potassium hydroxide pencil applied to the choroid and immediately neutralized with one-half per cent solution of acetic acid, the subretinal fluid was drained by choroidal incision, and the superior rectus muscle and conjunctiva replaced. Improvement was gradual, but certain, and the visual acuity increased from moving objects to ability to count fingers at three feet. Despite repeated entreaties it has never been possible to get

this peculiar patient to return for examination. Her sister-in-law, two years later, reported that she was wonderfully improved, made her way about home alone, and was able to manage and care for her flock of chickens, and recognized them individually by sight. Her refusal to return for examination was actuated by two fears, first, that she might have a return of her detachment if she took an automobile ride; second, that her doctor might expect some remuneration for his services if he discovered how much she saw.

Fourteen cases have been treated with some form of diathermy application, a few where the sclera was touched but not penetrated by the electrode, the majority where the Walker micropins were inserted in the sclera and Walker's technique applied.

Of these ten have been unimproved, one improved from moving objects to 6 60, one from moving objects to 6 15-2, one from 3 60 to 6 12, two from moving objects to 6 7.5.

*Case III*

Mrs. D. W., age 69. With poor vision from old trachoma. Lost the sight in her better eye from retinal detachment three weeks before diathermy operation was done. Detachment was present from ten to three o'clock and very difficult to see because of the corneal opacities. Micropins were inserted above with subretinal drainage and entire reattachment took place. Vision has improved to 5 30 and been maintained for sixteen months. Inasmuch as vision in her other eye was only 1 120, the result has seemed more brilliant to her than has normal vision to some of our other patients.

*Case IV*

F. W., colored, age 38. Was sent to us by Dr. Kate Zerfoss six weeks after noticing detachment in his left eye. Ten years before a blur had come over this eye for which he was treated by Dr. Savage with recovery of vision. Because of the presence of proliferating retinitis it was deemed likely that a detachment had been previously present. Detachment from two to eight o'clock was present. A barrage of Larsson applications was made to the sclera and



twenty-five micropins inserted with subretinal drainage. Dr. Zerfoss four months later reported the vision had improved from 3/60 to 6/12 and J 2.

#### Case V

Mrs. R. C. P., age 58. Was seen five weeks after blurring of vision which announced a large detachment across the upper third of the retina. Walker's operation with insertion of ten micropins accompanied by subretinal drainage through a trephine opening was accomplished. Improvement of vision was slow but gradual and ten months later was 6/7.5 and J 1.

#### Case VI

Mrs. W. C. S., age 50. Was seen two days after detachment up and out from nine to twelve, invading the macula and reducing vision to moving objects. There was a tear at eleven o'clock. Six days after detachment the Walker operation was done; the area of the tear was encircled with micropins after a barrage of scleral diathermic contacts enclosed the region from the ora serrata as far posteriorly as possible. Gradual improvement followed and vision of 6/7.5 and J 2 has been maintained for eight months.

#### Case VII

R. C., age 25. Patient of Dr. Phil M. Lewis, whom we assisted in the operation, had suffered an injury of his right eye while boxing. Vitreous hemorrhage obscured for four and a half months the retinal detachment, which was later found to extend from eight to twelve o'clock, containing several tears near the ora serrata. Vision was hand movements. Six months after the injury, operation by the Walker method was performed. Twenty-three micropins were used, covering the entire detached area. Complete reattachment resulted with visual improvement to 6/15-2.

#### SUMMARY

1. In twenty-five cases of retinal detachment treated by surgical methods two cases recovered fair, useful vision; two recovered moderate vision; and three recovered excellent vision.

2. The recovery of vision from moving objects to approximately 6/60 is often of more real value to a blind patient than increase from 6/60 to any point beyond may be to a seeing one.

3. Although our results are by no means as favorable from percentage angles as those of other surgeons, we have not hesitated to include any case which desired operation.

4. Persistent, industrious, and conscientious efforts to improve operative technique will undoubtedly result in a much more favorable prognosis for retinal detachment in the future.

#### DISCUSSION

KATE SAVAGE ZERFOSS (Nashville): The report of this number of cases is of extreme value, as few have had the same opportunity to observe so many patients with retinal detachment in the limited time specified. It has been my privilege to see the fundi of three of the cases reported, and to observe the surgical procedures employed by the authors in two instances. It is to be hoped that at a later time the essayists will favor this group with another paper pertaining to the technique employed by them. Their abandonment of the Gonin ignipuncture and the Guist trephining operation exemplifies the general trend of the transition to electrocoagulation. This method obviates the great tedium of exact localization of the tear and is much more easily executed. Hemorrhage is less likely to occur as a complication. The combination of the Larsson scleral surface contact surrounding the tear and detachment with the use of the micropins appears to offer a definite advantage.

The drainage of the subretinal fluid was accomplished temporarily and continued postoperatively by the removal of the pins at the termination of the trephining or making a scleral puncture. Combining two or more methods has been emphasized by Kronfeld, who has advocated electrocoagulation and more than a single trephine if indicated to secure adequate evacuation of the subretinal fluid. Knapp has called attention to the fact that flat types of detachment require less radical measures.

The Safar needles are now perhaps favored less than the Walker micropins of iridium-platinum with threads attached. The use of a single pin appears to be an improvement over the application of those on stalks or multiple pins. The presence of more than three needles in an electrode makes the contact with the sclera less exact and more uneven pressure. A slight curving of the plaque to conform with the sclera curvature might remedy this defect. The pyrometric electrode of Coppez is a recent addition, and whereas it is not

yet in general use it offers a better control of the coagulating process.

A wide range of etiological factors is considered in the cases presented. A further analysis indicated that trauma was present in three instances, being a direct cause in two and indirect in the third. Myopia of high degree was noted in one case only. Sympathetic ophthalmia with chorioretinitis and retinitis proliferans were the two preceding pathological processes observed in the two remaining cases. These findings indicate the necessity of a careful study of the fundi, visual acuity, and fields of vision, and are of assistance in prognosticating the outcome as well as determining the operative course. In this connection Kronfeld has recommended the use of the dark field and target projector of light.

The time of operation varied from six days to six months following the detachment, the final results being in accord with the general observation that in the average case prompt interference should be instituted. As an adjunct to the surgical treatment, or even if this is refused, the instillation of one per cent atropine sulphate is indicated on the basis of elevating tension. Rest, position, and the use of Lindner's pinhole glasses are additional factors to be considered.

After a period of eight months, the visual acuity of case IV F.W. has remained 6/12 and shows an improvement for reading, which is now J 1. The exocoatropia and mydrasis persisted until October 7, at which time both conditions had practically disappeared. The fields of vision are now much less constricted.

One should not be discouraged by the number of unimproved cases in this series which were unselected, but definitely encouraged that three of the seven cases recovering obtained a visual acuity that was practically normal.

DR. H. C. SMITH (Nashville): I am quite pleased at being invited to discuss this report on the surgical treatment of retinal detachment. In 1931, it was my privilege to discuss the first report submitted to this society by Drs. Ellett and Rychener. Although they could wish for justification for more glowing statements concerning recovery of their patients, I am sure that it is the opinion of this group that they have reason for pride in the accomplishment which the report represents.

Remembering that Drs. Ellett and Rychener have not selected their cases, it would appear that their percentage of improved ones were probably more favorable in comparison with the results of other workers than they think.

Since Gonin began his significant work on the

surgical treatment of retinal detachment, we have seen the method evolve toward a more easily performed and a less mutilating operation. The percentage of improved cases from the attempts of an ever-increasing number of surgeons is certainly encouraging.

The restoration of vision, and not the mechanical reposition of the retinal membrane, is the important end sought, yet it appears that we are to meet disappointment frequently in finding the reattached retina unable to function. We are reminded from time to time of a statement which appeared in a monograph by Gonin: "The anatomic reattachment of the retina after several months of detachment does not always mean the return of useful vision." Probably the most important factor in recovery is early treatment. Of course, it is worth the effort if in an occasional case of detachment of long duration improvement is obtained, however we can expect more gratifying results from both the surgeon and the patient's standpoint if we find the condition early. This is proven by the report we have just heard, in which those cases which were improved by diathermy received the treatment, in all but one instance, as soon as six weeks after the discovery of the malady. Time should not be wasted in conservative treatment, then, since the patients' chances for recovery of useful vision quickly decrease.

As it was in the beginning of this rather new endeavor, the localization of a retinal tear is still important. Gonin's theory regarding the relation of detachment to the tear is still accepted. The more anterior and, therefore, the more accessible it is, the greater the possibilities for closing it.

As Kronfeld pointed out in his very interesting article on the function of the reattached retina, published late in 1933, the main problem lies in differentiating between damage done by the surgical procedure and that done by the disease itself. Possibilities for damage by the method now in use seem definitely less than from the procedure of Gonin and that of Guist. Added to this advantage, there is the very acceptable feature of ease in performance.

The number of successes reported from its employment prove the value of coagulation of subretinal fluid by diathermy above that of the methods earlier tried.

Dr. Ellett and Dr. Rychener have conferred quite a favor upon us in reporting the results of their latest work in this, which is one of ophthalmology's most interesting fields. They are to be commended both for the work and its successes, and for their frankness in recounting their experiences.



# THE JOURNAL

OF THE

## TENNESSEE STATE MEDICAL ASSOCIATION

Devoted to the Interests of the Medical Profession of Tennessee  
Office of Publication, 510 Doctors Bldg., Nashville, Tenn.

Acceptance for mailing at special rate of postage provided for  
in Section 1103, Act of October 3, 1917,  
authorized July 15, 1932.

H. H. SHOULDERS, M.D., Editor and Secretary

AUGUST, 1935

## EDITORIAL

### MINUTES OF THE HOUSE OF DELEGATES

The minutes of the proceedings of the last House of Delegates appear in this issue of the JOURNAL.

For the reason that many important actions were taken the Board of Trustees, after considering the matter, deemed it appropriate that they be published at the earliest practical moment.

It is hoped that the membership will lay this issue of the JOURNAL aside and read it with care at leisure moments.

There are many indications that the profession of medicine in Tennessee is working more as a unit than was ever the case before. There is also evidence of a determination to preserve for medicine its rightful place in our democracy.

### A SURVEY

The Children's Bureau in the Department of Labor at Washington has existed for a number of years. The profession is fairly familiar with its past.

The medical profession has found it necessary to oppose many of the activities of this bureau. It has always agitated questions of various sorts on limited information. And a fair analysis of its activities on the floor of the senate some years ago showed it had accomplished no demonstrable benefit to the children of America.

An example of the way this bureau works is furnished by an activity carried on in our own state of Tennessee.

The headquarters office received a report to the effect that a statement had been given out by the Children's Bureau at Washington

to the effect that a recent survey by the bureau in the city of Memphis shows a very bad situation there. Drs. Jacobs and Blue, of Memphis, in reply to an inquiry furnished information to the effect that a Miss Marion Barney of the Children's Bureau came to Memphis last October accompanied by two assistants. The visit on the part of Miss Barney was unsolicited. She visited various public agencies in Memphis concerned with child welfare. She made several inquiries. She then selected a small area of the city occupied by the middle class and poorer people, many of whom were on relief. These investigators went from house to house and made inquiries concerning the food, income, medical care, etc.

The results of this survey have been published in the Social Service Review, Volume IX, No. 2, June, 1935, under the heading, "Children of the Depression."

Table 3 in a reprint shows that a total of 62 families were interviewed in Memphis. Forty-seven were white and 15 colored, and that a total of 125 children under 16 years were visited—90 white and 35 colored. A total of 26 children between the ages of 16 and 20 were visited—22 white and 4 colored.

Table 1 in the same bulletin shows there are 80,383 families in Memphis. The 62 families selected constitute such a small fraction of the population that it is difficult to figure. According to our arithmetic, it is 77 thousandths of 1 per cent. The area studied was selected by the investigator unfamiliar with the city.

A study of such a small fraction of a city could hardly be called a survey unless one is using the word survey with all the liberty that poetic license affords.

Of course, all such surveys need careful analysis. In the first place, anyone could select a group of 62 families in Memphis and prove most anything the investigator starts out to prove. If he should want to prove the entire city to be colored he could select 62 families and do that, etc.

The tragedy of the whole situation is that a lot of people accept such information as authoritative and their conclusions as authentic, simply from the fact that the inves-

tigations were made by persons connected with a government bureau.

Accurate analysis, proven facts, a proper viewpoint, all these are needed much more than propaganda designed to increase bureaus and bureau appropriations.

---

#### THE MEDICAL PROFESSION AND THE TENNESSEE EMERGENCY RELIEF ADMINISTRATION

The July issue of the JOURNAL carried a brief account of the experiences that the committee appointed to confer with the Tennessee Emergency Relief Administration has had.

Dr. J. F. Gallagher of the Tennessee Emergency Relief Administration saw fit to charge in a statement, published in the lay press, to the effect that doctors require supervision by case workers, because some have made unnecessary calls on relief clients. In reply to this and other statements the committee requested exact information as to where any such fraud had been practiced by a doctor, and in addition complete information as to the amount of money that has been paid to practitioners of medicine for the care of relief clients.

In a subsequent statement by Judge Brown these requests were utterly ignored. It seems they do not care to publish complete facts. For this reason the committee is endeavoring to compile information as to the amount of money received by doctors. This information is in the process of collection now. It is not complete, but a few individual counties are complete and much collateral information has been accumulated.

Judge Brown in a statement insists that some very prominent doctors called on him and that one of the group volunteered to write a new schedule of fees for doctors. He also intimates that a great deal of study was given the subject.

It never seems to occur to any of them that the conditions under which doctors are compelled to work are just as much their concern as is the schedule. In fact, the schedule is not uppermost in the minds of doctors at all.

Any sort of a brief study of the subject

reveals that Ohio has recently adopted a plan worked out by the cooperation of the medical association, such as should have happened in Tennessee, and doubtless would have happened in Tennessee but for the interferences.

Under the Ohio plan the case workers do not supervise the work of the doctors. A certain portion of the relief money in each county is allocated for medical care. The amount of the fund is determined by the number on relief in that county. When the amount of the fund is determined, that sum is set aside for medical care.

A committee of doctors in the counties supervise the care of these indigents. At the end of each month the fund is distributed to the doctors on the basis of the work done by each. By such an arrangement the Relief Administration is spared all the excessive expenses involved in financing a large number of case workers who in turn supervise the work of the doctors.

The absurdity of the present setup of case workers supervising the work of doctors is exposed when one stops to think that a case worker charged with the duty of passing on the medical requirements and medical needs of a sick person or an allegedly sick person cannot even pass judgment on so simple a question as to whether a person is employable or not employable.

Since such a gross charge has been made against the medical profession, we are anxious to determine just how much money the doctors of Tennessee have received out of the millions that have been spent on relief. We would like to compare the amount received by doctors with the amount received by the supervisory case workers and various executives, etc. Information so far accumulated shows very little money received by doctors in some counties. In one county the pay roll of the administrators, case workers, etc., amounted to \$3,435 for a quarter. The amount received by all the doctors in that county amounted to \$746.16 for the quarter, which is an average of \$17.76 per month per doctor, and, mind you, the doctors paid all their own expenses.

Another interesting bit of information is to the effect that a father of a family on



relief called for a doctor to see his sick child. The case worker authorized the doctor to make one call and declined to issue any further authorizations. The doctor continued to attend the child without authorization until the child died some two weeks later.

The judgment of the doctor and the judgment of the case worker as to the need of medical care in this case did not coincide. It is to the everlasting credit of the doctor that he continued on the case without authorization and without hope of pay.

This is merely one of the examples of a layman supervising the work of a doctor.

Broadly speaking, the administration of relief in Tennessee under its present setup is one species of state medicine. It embodies the element of political administration of medical care. Both the patients and the doctors are under the control of the politically appointed executive. The taxpayers foot the bill.

It is very important that we doctors and lay people make a serious study of this particular development in Tennessee because of the bearing it may have on future legislation on the subject of state medicine.

We know that in some European countries the cost of administering medical care under political supervision is greatly increased, and that the *political supervision of medical care* costs more in many cases than the cost of actual care.

This brief, unhappy experience may be a very great blessing in the way of destroying some of the illusions of those who favor state medicine.

Undoubtedly those who have received the greatest benefit from the Relief Administration are the salaried administrator groups, case workers, etc. This fact stands out in all the figures we have compiled up to now.

In conclusion, we would state that instances are coming to light with increasing frequency which serves to increase our pride in the medical profession and in its conduct toward the indigent throughout this depression. It is a record of unselfish devotion to duty unparalleled by any other group of citizens.

## STANDING COMMITTEES

### COMMITTEE ON SCIENTIFIC WORK

H. H. Shoulders, Chairman, Nashville  
A. F. Cooper, Memphis  
W. J. Sheridan, Chattanooga  
Jesse C. Hill, Knoxville

### COMMITTEE ON PUBLIC POLICY AND LEGISLATION

Battle Malone, Memphis (five years)  
L. W. Edwards, Chairman, Nashville (four years)  
Tom Barry, Knoxville (three years)  
T. R. Ray, Shelbyville (two years)  
Robert Sullivan, Nashville (one year)

### COMMITTEE ON EDUCATION

O. S. Warr, Chairman, Memphis (three years)  
R. B. Wood, Knoxville (three years)  
W. G. Kennon, Nashville (two years)  
J. Marsh Frere, Chattanooga (two years)  
W. O. Baird, Henderson (one year)  
J. M. Lee, Nashville (one year)

### LIAISON COMMITTEE

Hiram A. Laws, Chattanooga (four years)  
Tom Mitchell, Memphis (three years)  
J. L. Raulston, Knoxville (two years)  
W. C. Dixon, Chairman, Nashville (one year)  
W. P. Wood, Knoxville (five years)

### STATE TUBERCULOSIS HOSPITAL COMMISSION

W. S. Rude, Chairman, Ridgetop  
O. N. Bryan, Nashville  
C. M. Oberschmidt, Memphis  
J. L. Hamilton, Chattanooga

### HOSPITAL COMMITTEE

D. R. Pickens, Chairman, Nashville  
E. H. Baird, Dyersburg  
B. L. Jacobs, Chattanooga  
Kyle Copenhagen, Knoxville  
J. A. McIntosh, Memphis  
Lee Gibson, Johnson City

### ADVISORY COMMITTEE TO THE WOMAN'S AUXILIARY

Oliver W. Hill, Knoxville  
Matt Murfree, Murfreesboro  
W. W. Campbell, Memphis

## LIST OF OFFICERS OF THE TENNESSEE STATE MEDICAL ASSOCIATION

President—Dr. John B. Steele, Chattanooga.  
 Vice President for East Tennessee—Dr. C. R. Thomas, Chattanooga.  
 Vice President for Middle Tennessee—Dr. J. W. Wilkes, Columbia.  
 Vice President for West Tennessee—Dr. N. S. Walker, Dyersburg.  
 Secretary—Editor—Dr. H. H. Shoulders.  
 Assistant Secretary—Editor—Dr. W. M. Hardy.

## TRUSTEES

Chairman and Treasurer—Dr. C. M. Hamilton, Doctors Building, Nashville.  
 Dr. Franklin B. Bogart, Medical Arts Building, Chattanooga.  
 Dr. W. L. Williamson, 915 Madison Avenue, Memphis.  
 Dr. J. O. Manier, Doctors Building, Nashville.  
 Dr. E. R. Zemp, Walnut Street, Knoxville.

## COUNCILORS

First District—Dr. L. E. Dyer, Greeneville.  
 Second District—Dr. S. R. Miller, Knoxville.

Third District—Dr. J. H. Revington, Chattanooga.  
 Fourth District—Dr. J. F. Moore, Algood.  
 Fifth District—Dr. John W. Sutton, Petersburg.  
 Sixth District—Dr. L. W. Edwards, Nashville.  
 Seventh District—Dr. C. D. Walton, Mt. Pleasant.  
 Eighth District—Dr. J. R. Thompson, Jackson.  
 Ninth District—Dr. E. H. Baird, Dyersburg.  
 Tenth District—Dr. W. B. Burns, Memphis.

Speaker of the House of Delegates—Dr. E. R. Zemp, Knoxville.

## Delegates to the American Medical Association—

Dr. E. G. Wood, Knoxville; East Tennessee.  
 Dr. H. H. Shoulders, Nashville; Middle Tennessee.  
 Dr. H. B. Everett, Memphis; West Tennessee.

## Alternates—

Dr. E. T. Newell, Chattanooga; East Tennessee.  
 Dr. J. O. Manier, Nashville; Middle Tennessee.  
 Dr. E. C. Ellett, Memphis; West Tennessee.

## OFFICERS OF COUNTY MEDICAL SOCIETIES FOR THE YEAR 1935

| COUNTY                   | PRESIDENT                             | VICE PRESIDENT                        | SECRETARY-TREASURER              |
|--------------------------|---------------------------------------|---------------------------------------|----------------------------------|
| Anderson                 | Thomas Jennings, Clinton              | Edward Dickson, Coal Creek            | J. S. Hall, Clinton              |
| Bedford                  | W. T. Sharpe, Farmington              | Alfred Farrar, Shelbyville            | W. H. Avery, Shelbyville         |
| Blount                   | C. C. Vinsant, Maryville              | L. C. Olin, Maryville                 | H. A. Calloway, Maryville        |
| Bradley                  | Vance H. Bell, Cleveland              | D. N. Arnold, Cleveland               | Wm. A. Garrett, Cleveland        |
| Campbell                 | A. L. Lawson, Elk Valley              | G. M. Rogers, LaFollette              | F. J. Slemmons, Jellico          |
| Carroll                  | E. T. Pearson, Elizabethton           | J. B. Shoun, Elizabethton             | J. H. Williams, McKenzie         |
| Carter                   | C. H. Johnston, Lexington             | L. C. Smith, Henderson                | E. L. Caudell, Elizabethton      |
| Chester, Henderson,      | J. A. P. Shields, Hartford            | J. E. Hampton, Newport                |                                  |
| Decatur                  | E. W. Mitchell, Crossville            | V. L. Lewis, Crossville               |                                  |
| Cooke                    | W. G. Kennon, Nashville               | H. S. Shoulders, Nashville            | J. P. Gilbert, Nashville         |
| Cumberland               | L. F. Loggins, Charlotte              | R. P. Beasley, Dickson                |                                  |
| Davidson                 | E. H. Baird, Dyersburg                | P. E. Miller, Tigrett (Dyer)          | C. L. Denton, Dyersburg          |
| Dickson                  |                                       | R. C. Newkirk, Tiptonville (Lake)     |                                  |
| Dyer, Lake, and Crockett |                                       | J. O. McKinney, Friendship (Crockett) |                                  |
| Fayette and Hardeman     | John Morris, Somerville               | L. D. McAuley, Oakland                | A. Richards, Bolivar             |
| Fentress                 |                                       |                                       | J. P. Sloan, Jamestown           |
| Franklin                 | W. F. Smith, Decherd                  | A. P. Smith, Winchester               | John P. Grisard, Winchester      |
| Gibson                   | P. D. Jones, Milan                    | L. H. Montgomery, Trenton             | F. L. Roberts, Trenton           |
| Giles                    | Joe B. Wright, Lynnville              | R. E. Warren, Pulaski                 | T. F. Booth, Pulaski             |
| Greene                   | L. E. Dyer, Greeneville               | M. A. Blanton, Mosheim                | C. P. Fox, Jr., Greeneville      |
| Grundy                   | D. H. Bryan, Monteagle                | O. H. Clements, Palmer                | T. F. Taylor, Monteagle          |
| Hamblen                  | P. L. Henderson, Morristown           | P. L. Brock, Morristown               | J. F. Campbell, Morristown       |
| Hamilton                 | James L. Bibb, Chattanooga            | D. N. Williams, Chattanooga           | W. J. Sheridan, Chattanooga      |
| Hardin, Lawrence, Lewis, |                                       |                                       |                                  |
| Perry, Wayne             | G. N. Springer, Hohenwald             |                                       | C. C. Stockard, Lawrenceburg     |
| Haywood                  | W. D. Poston, Brownsville             | A. H. Sorrelle, Brownsville           | Roy M. Lanier, Brownsville       |
| Henry                    | A. F. Paschall, Puryear               | Elroy Scruggs, Paris                  | R. Graham Fish, Paris            |
| Hickman                  | L. F. Pritchard, Only                 |                                       | W. K. Edwards, Centerville       |
| Humphreys                |                                       |                                       | W. W. Slayden, Waverly           |
| Jackson                  | J. D. Quarles, Whitleyville           | R. C. Gaw, Gainesboro                 | F. B. Clark, Gainesboro          |
| Knox                     | Eugene Abercrombie, Knoxville         | W. F. Christenberry, Knoxville        | Jesse C. Hill, Knoxville         |
| Lauderdale               | J. L. Dunnivant, Ripley               | T. E. Miller, Ripley                  | J. R. Lewis, Ripley              |
| Macon                    | D. D. Howser, Lafayette               |                                       | J. Y. Freeman, Lafayette         |
| Madison                  |                                       |                                       | S. M. Herron, Jackson            |
| Maury                    | E. M. Ragsdale, Columbia              | D. B. Andrews, Columbia               | C. D. Walton, Mt. Pleasant       |
| McMinn                   | R. W. Epperson, Athens                | S. B. McClary, Sr., Etowah            | L. A. Brendle, Englewood         |
| McNairy                  | John R. Smith, Selmer                 | G. B. Curry, Selmer                   | H. C. Sanders, Selmer            |
| Monroe                   | T. M. Roberts, Sweetwater             |                                       | W. J. Cameron, Sweetwater        |
| Montgomery               |                                       |                                       | Paul E. Wilson, Clarksville      |
| Obion                    |                                       |                                       | Frank Kimzey, Union City         |
| Overton                  |                                       |                                       | A. B. Qualls, Livingston         |
| Polk                     | H. P. Hyde, Copperhill                | W. Y. Gilliam, Copperhill             | F. O. Geisler, Isabella          |
| Putnam                   | Z. L. Shipley, Cookeville             | J. Fred Terry, Cookeville             | Thurman Shipley, Cookeville      |
| Roane                    | L. A. Killefer, Harriman              | R. F. Register, Rockwood              | W. W. Hill, Harriman             |
| Robertson                | W. Foster Fyke, Springfield           |                                       | W. S. Rude, Ridgely              |
| Rutherford               | J. D. Hall, Readyville                |                                       | J. A. Scott, Murfreesboro        |
| Scott                    |                                       |                                       | D. M. Woodward, Winona           |
| Sevier                   | O. H. Yarberry, Sevierville           |                                       | C. P. Wilson, Sevierville        |
| Shelby                   | Jas. B. Stanford, Memphis             | R. G. Henderson, Memphis              | A. F. Cooper, Memphis, Secretary |
|                          | R. F. Mason, Memphis, President-Elect |                                       | J. J. Hobson, Memphis, Treasurer |
| Smith                    | R. E. Key, Monrovia                   | Rhea E. Garrett, Dixon Springs        | Thayer S. Wilson, Gordonsville   |
| Sullivan and Johnson     | W. R. Rogers, Bristol, Va.            | L. C. Cox, Kingsport (Sullivan)       | Arthur Hooks, Bristol, Tenn.     |
|                          |                                       | J. C. Hutchenson, Crandall (Johnson)  |                                  |
| Sumner                   | J. J. Gwin, Hartsville                | R. N. Buchanan, Hendersonville        | Homer Resse, Gallatin            |
| Tipton                   | A. J. Butler, Covington               | J. J. Fleming, Atoka                  | H. C. Currie, Covington          |
| Warren                   |                                       |                                       | John S. Harris, McMinnville      |
| Washington               | J. W. Wallace, Johnson City           | E. T. Brading, Johnson City           | Carroll H. Long, Johnson City    |
| Weakley                  | R. W. Brandon, Martin                 | H. G. Edmonson, Martin                | P. W. Wilson, Dresden            |
| White                    | S. E. Gaines, Sparta                  | Vernon Hutton, Ravenscroft            | A. F. Richards, Sparta           |
| Williamson               | T. C. Rice, Franklin                  | R. H. Hutchison, Franklin             | K. S. Howlett, Sr., Franklin     |
| Wilson                   | J. L. Ames, Lebanon                   | C. C. Young, Alexandria               | S. B. McFarland, Lebanon         |



## D E A T H S

Dr. W. W. Wallace, Bolivar; Memphis Hospital Medical College, 1910; aged 52; died July 27.

Dr. Harden P. Cochrane, Franklin; New York University Medical College, New York, 1874; aged 92; died June 11, from a broken hip caused by a fall at his home on June 4.

## R E S O L U T I O N S

IN MEMORY OF DR. W. W. McBRIDE

Dr. W. W. McBride was born and reared in Weakley County, Tennessee, where he spent his entire life. He died May 14, 1935, at the age of 76, after having lived a very useful life.

Dr. McBride was a splendid citizen, and a much loved physician. He was graduated from the University of Tennessee Medical College, Nashville, in 1888. To say he was efficient in the practice of medicine is to put it mildly, for he was that and more. He was an original thinker, industrious student, and a conscientious practitioner.

He had the happy faculty of scattering sunshine wherever he went. His wit and humor were contagious. One always felt better after meeting Dr. McBride. His place in life will be hard to fill. He was a charter member of the Tri-County Medical Society, of which he was one or more times its honored president. He was also a member of the West Tennessee Medical Association and Tennessee Medical Society.

We shall miss our genial friend and colleague more than words can express.

(Signed) H. L. ALEXANDER,  
E. M. EVERETT,  
*Committee.*

## M E D I C A L S O C I E T I E S

*Hardin, Lawrence, Lewis, Perry, and Wayne:*

A meeting was held in Lawrenceburg on

July 30. The following papers were read:

"The Problem of Mental Disease," by Dr. J. P. Gilbert, Nashville. Discussion was opened by Dr. W. C. Boyce, Flat Woods.

"The Diagnosis and Management of the Occipito Posterior Position," by Dr. Milton Smith Lewis. Discussion opened by Dr. D. L. Woods, Waynesboro.

"The Physical Signs That Would Lead a Country Physician to a Diagnosis of Cancer of the Lungs," by Dr. E. H. Etheredge, Loretto. Discussion opened by Dr. J. W. Danley, Lawrenceburg.

*Shelby County:*

August 6: Case Reports, "Hyperparathyroidism," by Dr. C. F. Varner.

"Unusual Esophageal Stricture and Malignant Growth of the Lung," by Dr. Richmond McKinney.

Papers: "Vincent's Angina," by Dr. Louis Levy. Discussion by Dr. F. D. Linn and Dr. L. C. Sanders.

"The Changing Belief," by Dr. W. L. Williamson. Discussion by Dr. J. C. Ayres and Dr. J. R. Reinberger.

*Washington County:*

The Washington County Medical Society met in Johnson City on July 11. The following papers were read: "Toxemias of Pregnancy," by Dr. C. W. Friberg. Discussion by Drs. Brabson and E. M. Fleenor.

"Appendicitis," by Dr. Lee K. Gibson. Discussion by Drs. Matthews and Miller.

## O T H E R M E D I C A L S O C I E T I E S

BLACK PATCH MEDICAL SOCIETY

About thirty-five physicians from Robertson, Montgomery, Cheatham, Houston, and Stewart Counties gathered at Perry Park near Springfield on Tuesday night, July 18.

Following the dinner the group heard addresses by Dr. M. B. Davis of Nashville on "Treatment of Burns" and Dr. W. H. Witt of Nashville on "Symptoms of Diseases."

Dr. W. B. Dye of Springfield, president,

presided over the meeting of the society, which is just entering its second year.

The next meeting will be held September 18 at Dover.

#### THE TRI-COUNTY MEDICAL SOCIETY

The Tri-County Medical Society met in Huntingdon July 9. The society is composed of the counties of Carroll, Henry, and Weakley.

The program was as follows:

Dr. J. A. Crisler, Jr., Memphis, Tenn., "Recurrence of Cancer After the Ten-Year Period."

Dr. Whitman Rowland, Memphis, Tenn., "The Diagnosis of Angina Pectoris." Dr. J. C. Ayers, Memphis, Tenn., "Some Common Errors in Obstetrics."

Dr. Tom Mitchell, Memphis, Tenn., "Rheumatic Fever."

Thirty members of the society and the visitors were present at a luncheon given by Drs. R. A. Douglass and V. E. Massey after which the scientific program was heard.

V. E. MASSEY, *Sec.*

## ABSTRACTS OF CURRENT LITERATURE

### OPHTHALMOLOGY

By ROBERT J. WARNER, M.D.  
Doctors Building, Nashville

Concerning Glaucoma Operations. *American Journal of Ophthalmology*, July, 1935. E. Grosz.

The author gives data concerning glaucoma operations at the first eye clinic in Budapest during the last thirty years, 6,043 patients being admitted to the hospital for treatment of glaucoma and 6,000 patients treated for glaucoma in the outpatient department. Grosz does iridectomy in acute inflammatory glaucoma, but agrees that it is of no value in glaucoma simplex and chronic inflammatory glaucoma. For the latter he does trephining or cyclodialysis. Of the hospital patients 4,927 were operated on for primary glaucoma, iridectomy being used in 2,773, Elliot's trephining in 755, Lagrange's iridosclerectomy in 168, cyclodialysis in 1,006, sclerotomy in 215, and Holth's iridencleisis in ten. Of cases of chronic inflammatory glaucoma, cyclodialysis was immediately successful in 87.7 per cent, after one year in 62 per cent, after two years in 54 per cent, and after three years in 50 per cent. If cyclodialysis was unsuccessful, trephining

was resorted to. The author prefers anterior sclerectomy for juvenile glaucoma and Lagrange's iridosclerectomy for glaucoma simplex.

### SURGERY—GENERAL AND ABDOMINAL

By BATTLE MALONE, II, M.D.  
1400 Monro Avenue, Memphis

Treatment of Peritonitis. Arthur Dean Bevan, M.D., Chicago. *Surgical Clinic of North America*, June, 1935.

The author first presents a review of the subject with special reference to the Murphy plan of early operation with removal of the source of the peritonitis.

Two-thirds of cases of fatal peritonitis are due to appendicitis and lesions of the stomach, small and large intestine. The other third are from lesions of the female genitals, bile tracts and pancreas, and peritonitis following injuries and operations, and the unusual forms of peritonitis which extend into the peritoneal cavity from extraperitoneal areas. The causative agents are colon bacillus, streptococcus, staphylococcus, gonococcus or a mixture, and a few rare forms, such as pneumococcus.

There are two periods in early peritonitis: the period of contamination, which is the first six to twelve hours, followed by the period of established infection. Operation should be done in this first period and the perforation or cause of the peritonitis removed. The author illustrates this with a case of a boy operated for a ruptured appendix through a McBurney incision, and, on finding pus in the peritoneal cavity, removed the perforated appendix invaginating the stump. He then introduced a glass catheter, with his thumb over the tip, into the cul-de-sac, removed his thumb for a moment, then replaced it and withdrew the catheter, which contained four inches of thin pus. He then inserted a large tube through an incision, just above the symphysis, into the cul-de-sac for counterdrainage. Then through a large catheter in the McBurney incision he irrigated the peritoneal cavity with a gallon of normal saline at 105 degrees Fahrenheit until the solution came out clear. Fluids were given by rectum and subcutaneously, and after twenty-four hours water was allowed by mouth. The day following operation the temperature was normal and pulse 100.

The time element is very important in the prognosis. Any case of acute appendicitis, seen in the first twenty-four or forty-eight hours, should be operated. But on the third or fourth day the surgeon must make a differential diagnosis between a local and general peritonitis.

The author condemns the method of "starvation and medical treatment" of general peritonitis. He contends that the cases treated successfully by this method are not cases of general peritonitis.



but are cases of localized peritonitis in which this method of treatment is properly indicated.

Beginning with the third day of a case of appendicitis the patient may begin to improve and on the fourth day an induration may be felt at the site of the inflamed appendix. If the induration is small it is probably not an abscess, but an area of induration and edema and a mass produced by local peritonitis. This type usually goes on to recovery and the mass disappears, and during these two or three days the symptoms and signs become milder. On the other hand, when there is a localized abscess, the mass is larger at the end of a week and there is evidence of sepsis. This should be opened extraperitoneally and drainage tubes inserted. In another case, on the third day, the symptoms become progressively more severe and there is evidence of widespread peritonitis. A laparotomy should be done, and if a general peritonitis is found the procedure outlined above should be carried out.

In acute cholecystitis it is preferable to allow the gall bladder to "cool off" before attempting surgery, but some cases become progressively worse and there is danger of rupture or gangrene of the gall bladder. Usually cholecystotomy is the wisest procedure in this type of case.

In lesions of the pancreas, such as acute pancreatitis, diagnosis is rarely made except that it is an acute abdominal emergency. Early laparotomy and drainage of the area involved should be done.

In peritonitis from lesions of the female genitalia when due to gonococcus, unless there is found at operation actual abscess formation, put a collapsible drain for a few days. If there is abscess formation in the tube or ovary this should be removed.

Operation in postoperative peritonitis is usually of little value.

Peritonitis from traumas should be treated by doing an exploratory operation at the earliest possible moment, with repair of the ruptured viscus and control of the hemorrhage, and drainage instituted.

## UROLOGY

By TOM R. BARRY, M.D., F.A.C.S.,  
Medical Building, Knoxville

Syphilis and Pregnancy. A Clinical Study of 2,150 Cases. J. R. McCord, J.A.M.A., July 13, 1935.

These cases were all in colored women. Previous pregnancies in 826 of this group ended disastrously 1,369 times. The prevention of disease in the baby and not the cure of the mother was the aim in this series.

The treatment consisted in the administration of .45 grams of neoarsphenamine and a mercuric inunction twice weekly.

The 2,150 pregnancies were classified as term, premature, late abortion, and early abortion. If the baby was stillborn or died in the hospital the result was classified as disastrous. The outcome was disastrous in 633, or 29.4 per cent. The per cent of disastrous results varied from 49 per cent where no treatment was given down to 5.4 per cent where ten or more treatments were administered.

There were 1,368 term pregnancies, 1,269 of these babies were discharged from the hospital (92.8 per cent). Eleven and four-tenths per cent of these babies had positive cord bloods. Of the women who had disastrous results, 71.7 per cent had no treatment as opposed to 3 per cent who had good treatment.

Those who had no antepartum treatment gave birth to 57 per cent of the premature babies, while those who had good treatment only showed 7 per cent.

In the late abortion cases there was only one case who had received more than six treatments. Not a single late abortion occurred in 298 women who had good treatment.

There were 123 early abortions and of these 84 per cent did not have prenatal treatment. He believes that syphilis is a common cause of early abortion. He believes that the Wassermann is just as reliable in pregnancy as any other time.

The cord Wassermann was positive in 11 per cent of term babies and in 21 per cent of prematures. In those of mothers who did not have antepartum treatment, 21 per cent gave positive cord Wassermann, and in those whose mothers had good treatment only 2 per cent had positive cords.

Spirochaeta pallida were found in the tissue of 61 per cent of the dead babies.

There was positive X-ray evidence in 62 per cent of the dead babies.

There were only three maternal deaths in this series and these were due to sepsis.

He believes that syphilis has nothing to do with hypertension in pregnancy. Mild and continuous antepartum treatment will insure 95 per cent normal babies. The Wassermann should not be considered during treatment.

## BOOK REVIEW

Martini's Principles and Practice of Physical Diagnosis.

Edited by Robert F. Loeb, M.D. From the authorized translation by George J. Farber, M.D. 203 pages with 30 illustrations. J. B. Lippincott Company.

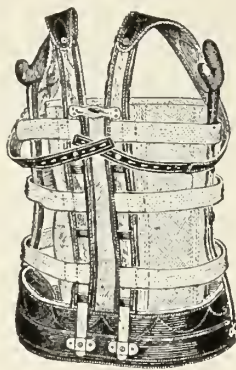
"This book is dedicated to teaching the essentials of seeing, hearing, and feeling in their relation to the body in health and disease. The training of these three faculties represents the foundation, without which the development of the student of medicine is impossible." While this book is intended chiefly for the medical student any practi-

tioner of medicine may study it with great profit. It covers the entire field of physical diagnosis accurately yet concisely. It is packed full of information that every one of us should have at our finger tips. The chapter on the respiratory tract is well arranged and instructive. The chapter on the circulatory system is especially good and com-

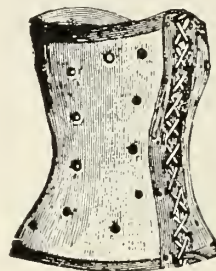
plete. At the back of the book is an outline for medical histories and physical examinations. If one followed this splendid outline fewer mistakes would be made in diagnosing difficult cases, and we would not be obliged to lean so heavily upon the laboratory. This is anything but a "Dry Martini."

E. R. Z.





H-185



## SPECIAL ATTENTION

—given to the selection and fitting for your patients of Orthopedic Appliances.

Our long experience in the manufacture of braces enables us to help you solve your problems in working out mechanical aid for your patients.

We appreciate your coöperation, and know you will like our service.

153 FOURTH AVENUE, NORTH  
NASHVILLE, TENN.

**THEO. TAFEL CO.**

**A**S YOUR PROFESSIONAL reputation is affected by every examination you make and every pair of lenses you prescribe, protect yourself by giving your patients only the best lenses that will faithfully reproduce the findings of your examinations. Milwide corrected curve lenses will assure you of accurate Rx's. They are built on scientific base curves, corrected for marginal errors, and pitched polished to finish free from aberration, pits and scratches.

---

---

**JOHN S. MILAM OPTICAL COMPANY**  
NASHVILLE, TENNESSEE

# THE JOURNAL

OF THE

## TENNESSEE STATE MEDICAL ASSOCIATION

DEVOTED TO THE INTERESTS OF THE MEDICAL PROFESSION OF TENNESSEE

ISSUED MONTHLY, Under Direction of the Trustees

H. H. SHOULDERS, M.D., Secretary and Editor

W. M. HARDY, M.D., Asst. Secretary-Editor

OFFICE OF PUBLICATION, 510 DOCTORS BUILDING, NASHVILLE, TENNESSEE

Volume XXVIII

SEPTEMBER, 1935

No. 9

### THE FAILING HEART\*

C. B. LAUGHLIN, M.D., Greeneville

I HAVE selected for my subject on this occasion one that all of you are thoroughly familiar with in your practice. The failing heart is our foremost problem today, and it is with deep concern that we as a medical profession have seen the number of deaths from heart failure gradually increase for the past several years, while the other most common causes of death have decreased from 25 to 90 per cent.

Last year in our state there were 4,010 deaths due to heart failure, twice as many as from any other cause, such as pneumonia with 2,607 and tuberculosis with 2,414, and three times as many as the next most common cause, nephritis, with 1,727 deaths. In 1934, heart failure caused 14 per cent of the deaths in Tennessee.

One is not unmindful of the fact that preventive medicine has greatly reduced the deaths in many of the leading causes in the past fifteen years. Also that a more accurate diagnosis may have, in a small manner, increased the number due to cardiac failure, but certainly these two factors do not account for the present existing number of heart failure cases.

If we are so efficient in diagnosing heart diseases and preventing other diseases, then why are we not able to cope with the causes and treatment of heart conditions? No one could question the fact that the profession is more skillful in locating foci of infections that may cause certain patholog-

ical conditions, as well as being more efficient in recognition and management of cardiac diseases.

The above statement being true, there must be some new causes of heart failure that we are not coping with, either in preventive measures or in treatment. May I submit to you for your consideration two of the probable causes of so many heart failures? First, is it dissipation or overtaxation of our body and mind? Second, the lack of recognition and proper management of early heart disorders.

In dealing with the first suggestion, it is very probable that many of the potential heart failure cases start from lack of rest or dissipation of the youth and young adults, due to mental and physical overexertion, simply because they do not take the proper amount of rest or expose themselves to so many irregularities of life, such as unnecessary loss of sleep, physical dissipation, worry, haste, as well as dietetic indiscretions, overindulgence in food, etc. In the middle-aged and older people, both mental and physical overexertion in these days no doubt precipitate many heart failure cases that would not have occurred.

The second suggestion which is the early recognition and proper treatment of early heart conditions cannot be overemphasized. For many of the acute infectious heart conditions could be practically returned to a normal state in its structure and function. One may assume that we are reasonably efficient in determining the cause in infectious heart troubles, but at the same time

\*Read before the Tennessee State Medical Association, Nashville, April 9, 10, 11, 1935.



are we so efficient in carrying out the proper treatment to arrest the case or to cure the conditions, as may be done in many cases. The treatment of early heart disorders should be fashioned to a great extent after the treatment of tuberculosis. Of course, in most cases, the rest period would not be so long.

Rather than to try to classify heart disorders, may we attempt to deal with them according to the probable pathology, which is exceedingly variable and differs in each individual instance. In order to outline the proper treatment one must have a fairly good mental picture of the pathology of each case.

One must recall that the failing heart may be caused by many conditions, and we would be very shortsighted if we looked to the heart exclusively for the fault. The basis of disturbances may be by no means centered in the heart, though this is more often the case. It may originate from: (1) valvular defect; (2) arrhythmia; (3) from coronary thrombosis, which seems to be greatly increasing; (4) pericardial causes seem to be decreasing. Causes not centered in the heart are: (1) Hypertension, either of short or long duration, perhaps essential or nephritic hypertension. Then probably the most common causes of all are the infectious diseases, such as pneumonia, influenza, especially in old age, rheumatic fever in the young, whether it be infectious or not, and other so-called rheumatic conditions of all ages. Some infectious diseases are more prone to cause heart conditions, and we call your attention to the frequency in which the valves or heart muscle is involved in rheumatic cases, both young and old. Also heart failure in anemias is very common, and another cause that may often be overlooked is unaccustomed overwork. However, there may be some essential defect in the heart or vessels in these cases.

It has been stated that one could not always look to the heart for the causes of heart failure; also the same is true with the symptoms, both subjective and objective, and physical findings as it is with the conditions causing cardiac failure. How often do we have patients that complain of

symptoms of other systems than the circulatory. It may be symptoms of the respiratory system, such as dyspnea, not being able to sleep without elevation of head, or one may note Cheyne-Stokes type of breathing, cardiac asthma, epistaxis, cough, hemoptysis, pulmonary edema, and hoarseness. It may be symptoms of the gastrointestinal system, anorexia, flatulence, belching of gas, and a feeling of fullness in the epigastrium, or in advanced cases, nausea, vomiting and epigastric pain, also enlargement of the liver and sometimes jaundice. In the urinary system there may be oliguria, albumin, hematuria, and an impaired renal function. Reproductive system, amenorrhea, dysmenorrhea, menorrhagia, and leucorrhea. Nervous system, there may be dizziness, drowsiness, syncope, headache, feeling of exhaustion, cerebral embolism or thrombosis, defective vision or hearing. Skin and mucous membranes, cyanosis, petechial spots, edema, effusion into pleural, pericardial and peritoneal cavities.

First may we consider early heart failure. The subjective symptoms in this condition are dyspnea, pain, substernal pressure, palpitation, tachycardia, edema of feet, cough, and, rarely, edema of lungs. Dyspnea is the symptom that is first noted by the patient in 60 per cent of the cases. They probably could have observed that they were more easily fatigued, but they seldom do. About 20 per cent have some pain in region of the heart and some substernal pressure, and only a few have palpitation.

Assuming now that one has diagnosed an early heart condition, what shall be the treatment, which depends upon the pathology of the case? There are some things in common to all cases for treatment of early heart failure. The treatment should be as follows:

1. If it is an acute heart condition such as rheumatic carditis:
  - (a) Rest in bed until temperature, pulse, blood pressure is normal for several days. Gradually allow patient to be up.
  - (b) Remove any foci of infection when condition will permit. No surgery until acute condition has subsided.

- (c) Sedatives if they are necessary for comfort or sleep.
- (d) Any food that agrees with the patient. No enormous meals.
- (e) No digitalis when the heart structure is acutely involved from any type of infection.
- (f) No drugs like iron that may upset the digestive tract until patient has reached the convalescent stage.
- (g) Morphine and atrophine are very valuable drugs in any type of heart failure if they are necessary to make the patient comfortable.

Another very common condition that often causes much trouble for the surgeon is failure of the peripheral circulation and finally of the heart. It is due to dilatation of the arterioles and capillaries, the skin is flushed, patient feels hot, and the blood pressure is low, due to the accumulation of the blood in the dilated blood vessels, which diminishes the inflow of blood to the heart.

The drugs used in these cases must be those that have an immediate effect, such as caffeine sodium benzoate grains  $7\frac{1}{2}$  by hypodermic and ephedrine grains three-fourths or small and frequent doses of adrenalin M5 every twenty minutes, which must or should be used as the last resort, but before it is necessary to use it in the vein.

Shock is another problem more often for the surgeon, but one which all doctors must deal with at times. It may be primary shock or secondary. In the group called primary shock it is purely a nervous condition caused by psychic cause, and rest and heat are about all that is necessary. In the secondary shock such as traumatic, surgical, hemorrhagic, etc., that is shock produced by some physical means, the symptoms are: low arterial pressure, rapid pulse, grayish pallor or slight cyanosis, profuse sweating or moist cold skin, frequent shallow respiration, usually a dulled mental condition or coma, muscular weakness, subnormal temperature, most always thirsty, sometimes vomiting.

Shock is not failure of the perspheral circulation, but a lessened output of blood

from the heart due to an insufficient supply of venous blood to the heart, which is due to a fall of venous pressure caused by a withdrawal of blood from the circulation partly through the passage of plasma into the tissue, but mainly through stasis of blood in the dilated capillaries and small veins.

Treatment is morphine and atrophine, caffeine, heat, concentrated solutions and transfusion if it is due to hemorrhage.

You recall that it has been stated that heart failure may involve many of the systems of the human anatomy. In chronic advanced heart failure there are three very common symptoms, pain, dyspnea, and edema. Also at the same time there may be many of the symptoms mentioned in early heart failure, but the three mentioned here are the ones we usually find.

The pain may be of a pressure or aching type or it may be what is known as the anginal type which is very severe and occurs in attacks. It is an agonizing, terrifying pain. Dyspnea is perhaps the commonest of the symptoms of heart failure. Edema is common in the late stages of heart disease, usually occurring in the feet as a result of gravity.

The treatment of chronic advanced heart failure is quite different in some respects from that of acute and early heart conditions for several reasons, the cause may be different, the patient is usually much older: (1) Rest should not extend over too long a period, because the heart muscle has a tendency to degenerate. (2) Diet: they may eat anything that agrees with them, no large meals, but as often as necessary to satisfy their appetite, but their weight must be kept around normal. They should rest after each meal. (3) Digitalis is most beneficial in these cases. It requires about 30 grains to digitalize the average-sized individual, and if their condition will permit they should be given 10 grains daily for three days, 1 cc. or 30 drops of a fresh tincture every four hours for 20 doses, then from 20 to 60 drops daily after they have become digitalized. (4) Morphine and atrophine may be necessary until the patient has become digitalized and in the end states of heart failure.



## DISCUSSION

DR. SIDNEY BURWELL (Nashville): I feel a little hesitancy in discussing Dr. Laughlin's paper in his absence. It is as though I were talking about a man behind his back, but I take it that any discussion here will be presented to him so that he may make his own response to it in the JOURNAL.

He has certainly selected an important subject, because the mortality in heart disease is rising and because most people who die of heart disease die from heart failure.

I find it a little difficult, however, to discuss a paper of so broad a scope as this one, and I suggest that one of the first things that we need to do as a profession is to be very strict and careful in our thinking about heart disease and to classify our cases as accurately as it is possible to do. To make a diagnosis of "heart" disease is about as satisfactory as to make a diagnosis of "brain" disease or of "foot" disease.

The same criticism is applied to the term "heart failure" because it is used by different people to mean a number of different things, and I think it is necessary to specify the type of heart failure with which we are dealing. This is particularly important because it isn't only an academic point, but also a very practical one. The treatment of some kinds of heart failure is quite different from the treatment of others. One of the treatments of the shock type of circulatory failure is transfusion. One of the treatments of congestive heart failure is depletion by bleeding. Digitalis does a great

deal of good to people with congestive heart failure, and if it does anything at all it does harm to people who are suffering from acute circulatory shock.

I don't know of any precise evidence that would indicate that mental or physical overwork is in itself a cause of heart disease. I don't think there is any doubt that when dissipation and overwork are indulged in by people who already have heart disease that it may very well accelerate the progression of the heart disease and perhaps precipitate the onset of cardiac failure.

There are one or two details that I would like to refer to. One is to support Dr. Laughlin enthusiastically in his emphasis on the point that the signs of heart failure are not to be found in the heart. No examination of the heart will tell you very much about its function. You can hear a gallop rhythm, or suspect you hear it; you can hear a very rapid rate and think that failure may be coming along pretty soon, but if you want to know whether a man has heart failure or not, look at the neck veins, the liver, the bases of his lungs, his feet, and ask him how he feels.

With regard to his suggestion that the care of early heart disease should be on the same basis as that of tuberculosis, I should be inclined to say that that is true if by early heart disease he means early rheumatic heart disease with actual acute invasion of the heart itself. I don't believe there is any reason to think that early hypertensive or early syphilitic heart disease in the absence of failure would be aided by prolonged rest.

## BRUCELLA INFECTION\*

(Undulant Fever—Abortus Fever—Malta Fever)

With a survey of cases occurring in Memphis and Shelby County—1934

W. R. BLUE, M.D., Memphis

THIS subject is offered for your consideration for two reasons. First, I believe it is timely, as the disease is on the increase. Second, as a victim of this ravaging infection in 1933 and 1934, I am personally interested in the detection, the successful management, and the control of further spreading of the infection. Man acquires this disease from infected animals by the ingestion of raw contaminated dairy or meat products, or by direct contact with infected animals.<sup>1</sup>

Thirty years ago undulant fever was regarded as a subtropical disease and it was believed it did not pass beyond 46 degrees north latitude. Today it prevails under climatic conditions ranging from Alaska in the Arctic Circle to equatorial Africa.<sup>2</sup>

Dr. Charles Nicolle has tersely stated, "Mediterranean (undulant fever) is in the course of revolution and is tending to become chronic. It is a disease of the future."<sup>2</sup>

It is no longer a rare disease, but occurs endemic and epidemic throughout this country. For this reason it should not be passed up lightly by the medical profession.

The literature is comparatively recent, yet the history of Brucella infection reads like a novel. From the early writings of man we have no direct information relative to this disease, and his close association with goats, hogs, cattle, etc., but upon close study such may have existed, for Hippocrates in 400 B.C. described a long-continued fever which Castillani and Chalmers believe was that which is now known as Malta or undulant fever.

Moscally, in 1567, related the infectiousness of abortion in cattle.<sup>2</sup> In the late eighteenth century a study was made among English troops who occupied the Mediterranean area during the Napoleonic wars,

as to a continued fever which was termed Neapolitan or Mediterranean fever.<sup>3</sup>

The *Complete Farmer*, in 1807, recognized abortion in cattle as contagious and advised the burial of the abortion with isolation of the aborting cows and a discontinuance of the bull in the particular cases.<sup>2</sup>

David Bruce, an English physician, in 1887, working with English troops on the Island of Malta, isolated from the spleen blood of victims of Malta fever the organism which he termed "micrococcus melitensis," having reproduced the infection in monkeys. Here goats flourished by the thousands and goat's milk was largely used as food. As the result army regulations prohibited the further use of raw goat's milk by soldiers in the garrison with an abrupt decline in the number of cases of fever among the army personnel.<sup>1</sup>

In the same year the agglutination test was described by Wright and Semple.<sup>2</sup>

Dr. Bang, a veterinarian of Copenhagen, in 1897, isolated from the uterus of a pregnant heifer the "Bang bacillus" as the cause of contagious abortion.<sup>2</sup> There was seemingly very little significance between the discovery of Bruce which pertained to fever in man from the ingestion of raw goat's milk and that of Bang which pertained to abortion in cows, particularly since one organism was seemingly a coccus and the other a bacillus, until Miss Alice Evans, in 1918, while working in the hygienic laboratory, established, after much investigation, the close association between the micrococcus melitensis in humans and the Bang bacillus in cows. Miss Evans contracted the infection in course of experimental work and was incapacitated for several years as the result. In 1920, Meyer and Shaw confirmed Miss Evans' findings as did Carpenter.<sup>2</sup>

Pfeninger, in 1923, reported *Brucella abortus* in the milk of 34.8 per cent of a

\*Read before the Tennessee State Medical Association, Nashville, April 9, 10, 11, 1935.



group of cows affected with contagious abortion.

Carpenter, in 1927, presented ten human cases, proving the infection of *Brucella abortus* to man. In the same year Huddleston, Halsey, and Torrey found greater numbers of *Brucella abortus* present in the cream rising from a sample of contaminated milk than either in the sediment or whole milk.<sup>2</sup>

#### INCIDENCE AND INFECTIOUSNESS

The incidence runs higher in summer months. When one reviews the literature on this subject he is impressed with the enormous amount of investigative work done on the part of veterinarians, bacteriologists, and physicians, together with the public health service. Yet in the face of these advances made as to the cause and modes of transmission of undulant fever, very little has been accomplished toward preventive measures as far as the consumer of contaminated dairy products is concerned. I make this statement only after investigation as follows: In March, 1934, as the result of questionnaires sent out to the Health Departments of Tennessee and bordering states, including the large cities of these states, the information received warranted the conclusion that there was little or no legislation protecting the consumer who uses raw dairy products from infection by the ingestion of a contaminated supply as related to undulant fever. The states included were Tennessee, Mississippi, Arkansas, Missouri, and Kentucky. (Slide No. 1.)

In a casual survey made in Memphis in March, 1934, the physicians interrogated reported 23 cases of undulant fever treated by them, while the State of Tennessee had only 12 cases reported. This gives you some idea of the actual incidence and the reported incidence. Undulant fever will not bear investigation, the actual prevalence of this disease only needs further light thrown upon the subject to bring out some information that will astound us.

Recently, March, 1935, I again sent out questionnaires to the states mentioned. The answers show some steps forward regarding surveys for contagious abortion, but

still there is little or no legislation regarding the sale of raw milk from contaminated herds to the consumer. (Slide No. 2.)

The January, 1935, report of the Tennessee Department of Public Health shows a state-wide survey for Bang's disease is at present being made. During January a total of 3,579 specimens from twenty counties were examined. Of the 3,579 specimens 792 (22 per cent plus) were positive for Bang's disease, which indicates a much higher prevalence of contagious abortion than was formerly supposed.

Hardy, in 1928, reported undulant fever prevailed in 38 states.<sup>2</sup> The United States Public Health Service reports 112 cases in the United States in 1927 and 1,888 cases in the United States in 1934. (The total number of cases reported from 1927, including 1934, was 10,067.) It is stated, "The reports for all years are incomplete, and it is probable that the disease was not recognized in many instances."

I quote Dr. Gordon Hastings of the Arkansas State Health Department: "It has been estimated that the cost of tolerating Bang's disease among cattle in the United States is fifty million dollars per year. The percentage of infection among dairy herds varies greatly, from 50 per cent or less to 90 per cent." (Dr. H. R. Schaeffer, veterinarian of Shelby County Health Department, Memphis, in a recent interview, believes the incidence in Shelby County about like that of Arkansas.) "The number of swine is estimated as 60,716,000 and the number estimated to be infected is from 1 to 4 per cent."<sup>1</sup>

In sections where hogs are raised extensively part of the cases of undulant fever have been found to be of swine origin. In the southwestern part of the United States where goats are raised extensively, the source of infection has been largely of goat origin. It is evident that the sources of infection and modes of transmission of undulant fever in the human family will vary in different geographic areas according to the prevailing local condition of animal and dairy husbandry and the consumption of raw dairy products.<sup>1</sup>

There seemingly exists a certain degree of immunity on the part of many individuals

to *Brucella abortus* (bovine) to such an extent it is claimed that comparatively few persons develop the actual infection in proportion to the number exposed. While this is partly true, yet it cannot be allowed to go unchallenged. This misconception in part is due to the number of cases that escape recognition because we are not undulant fever conscious, therefore, a definite diagnosis is not made. And again it is well known that avirulent strains of *abortus* (bovine) may under certain conditions become virulent and vice versa.<sup>1</sup> Also the cow may become infected with either the *Brucella abortus suis* (porcine (hog) strain) or *Brucella abortus caprine* (goat strain) by association with these animals and thus pass on to man the more virulent forms of the organism; this has been often reported.

Who then can say when this disease may or may not take on epidemic proportions? The literature abounds with reports of such epidemics, for example: "The New Jersey Epidemic." "In the summer and fall of 1931 twelve cases of undulant fever were found, all traced to a single herd. This herd had been infected with contagious abortion periodically from 1926 to 1931." Pasteurization was ordered and the dairy prohibited from selling raw milk and cream until the herd should be free of contagious abortion.<sup>5</sup> And again, "The Outbreak in Council Bluffs, Iowa," in February, March, and April, 1933, in which 30 cases were found, of which 27 cases were users of milk from one dairy, none of the patients were known to have contact with animals or to handle raw meat. They were infected with the porcine (hog) strain. The last case of the epidemic occurred thirteen days after the sale of the milk from the suspected dairy was stopped. (Giving some idea of the period of incubation, which is ten days to three weeks.) Of the 30 cases 10 or 33 1/3 per cent were in children under 15 years, the youngest reported was four years, the oldest 14 years. The duration of the disease varied from 10 days to 40 weeks.<sup>6</sup>

This epidemic of milk-borne undulant fever, reported as such, due to the porcine or hog strain, is proof of the danger that lies in wait in every community that boasts of a milk supply contaminated with *Brucella*

organisms. Also it does not support the statement that children are immune to the infection.

Here again a certain amount of immunity is granted, but while such exists to a degree it is not sufficient to warrant your children and mine the safety that should be theirs in using raw milk as food. Many persons exposed show positive agglutination tests who at the time may not give evidence of actual infection. This has been demonstrated particularly as related to children as reported by McBride, Daniel, and Poston of Duke University in their work. "In 210 orphanage children who had been drinking milk infected with *Brucella*, variety *suis* (hog), of a low virulence, only two developed the disease. Fourteen and six-tenths per cent of 48 tested early had agglutination without clinical evidence of the disease. The agglutinations disappeared rapidly when the infected milk was discontinued. Thirteen per cent of the 210 had positive intracutaneous reactions. Normal infants who had not received infected milk do not have positive intracutaneous tests. It is possible that children may become immune as a result of ingesting the organisms in raw milk without having clinical infection."<sup>12</sup>

This partly explains, I believe, the degree of immunity existing in some children as well as that of the calf, since the young of both species, human and bovine, enjoy more immunity than the adult. Also there is a possibility that since these organisms have a predilection for the generative organs, the fact that these organs in the young are not developed may be partly responsible for a certain degree of the immunity afforded them. Nevertheless the literature cites any number of reports of undulant fever in children such as that of Dietrich and Bonyng of five cases in children using raw milk.<sup>7</sup> Also Anderson and Pohl report three cases in children from three to eight years.<sup>8</sup>

An editorial in the *Journal A. M. A.*, title, "Information and Misinformation Concerning Undulant Fever," states in part as follows: "The relative low incidence of cases of undulant fever on official record is explained by the fact that there are many unreported and unrecognized cases." And fur-



ther, the work of Simpson of Dayton, Ohio, is cited to show that children are by no means entirely immune to the disease. Ten per cent of 90 cases reported by him were found in children under 10 years of age.<sup>9</sup>

While undulant fever is more prevalent in rural districts on account of increased exposure to animals and where most dairy products used are raw, nevertheless many cases occur in the cities among housewives and business men with no history of animal association.

Hardy reports from Iowa, viz., rural cases 49 per cent, urban 26 per cent, and town 25 per cent.<sup>2</sup>

The occurrence of actual infection is largely dependent on four factors: First, portal of entry; second, virulence of the particular strain of organisms; third, the number of organisms; fourth, the resistance of the host. While the digestive tract is still regarded as one of the principal ports of entry, both in man and animals, it has been demonstrated that organisms may invade the body through either the abraded or intact skin, as well as through the conjunctiva.

The infection is also more frequent among veterinarians, butchers, and employees of abattoirs (as well as bacteriologists and pathologists) owing to exposure in their respective duties. Many individuals may consume milk from an infected dairy for a long period without showing evidence of the infection; if one gets repeatedly large doses of virulent organisms, resistance may be overcome and disease result.<sup>1</sup>

The disease like many others is known to follow any condition that might lower one's resistance, such as tonsilectomy or appendectomy, etc. In my own case my resistance may have been lowered by the administration of rabies vaccine a few weeks before I became ill. Recent investigations tend to show that the "Brucella group" affects a large number of species of animals. They have been reported either by means of positive serological tests or by isolation of specific organisms from man, goats, sheep, cats, and chickens. Under experimental conditions, monkeys, turkeys, ducks, geese, guinea pigs, and mice have been found to be susceptible. Undulant fever occurs in pregnant women often enough to

be given as one of the causes of abortion, several cases having been reported.

### BACTERIOLOGY

The confusion in nomenclature with respect to the organisms involved and the specific disease in both animals and in man is unfortunate and has impeded progress in control work.

I offer the Hardy, Jordan, and Borts classification of Brucella organisms:

1. *Brucella melitensis* (variety *melitensis*).
2. *Brucella melitensis* (variety *abortus*).
3. *Brucella melitensis* (variety *porcine suis*).<sup>10</sup>

It is the opinion of most workers that the *melitensis* or goat strain is most virulent. The porcine or hog strain is next and the *abortus* or bovine is the least virulent. The organisms can be recovered in the victims from the blood streams in some cases by proper method. Also found in the urine, semen, saliva, stools, and skin excretions, in this respect simulating typhoid infection.

In animals it is found in the blood (at times), uterus, stools, milk, udder, mammary gland, semen, and raw meat as well.

Pathological studies are comparatively few in number. Wohlwill relates his own findings in organs of a woman of 67 years who died from Brucella infection. "Peculiar nodular foci in the spleen, lymph nodes and bone marrow. In the liver were focal necroses with a total destruction of cells. He considers the nodular formation as characteristic. He believes the infection spreads by the blood stream with the reaction primarily in the reticulo-endothelial system. He does not believe the spleen is first normal and spreading from there by thrombophlebitis through the portal vein to the liver as advanced by several authorities.<sup>11</sup>

### SYMPTOMATOLOGY

Onset is usually insidious, but may be sudden in severe infection. Malaise, anorexia, followed by weakness and prostration, aching generalized and particularly of the back. A sense of flushing of the face in the afternoon. In the morning in mild or ambulatory cases the patient will be refreshed after the night's rest only to tire

out as the day progresses. A rise in temperature from 99.3 to 105, depending on the severity of the infection. A definite loss of weight with prostration is present. Rigors, cough, headache, catarrhal stomatitis, muscle stiffness, particularly of neck and extremities. The temperature curve may be intermittent or remittent. Sweating of upper chest and neck as well as in axillae, with a peculiar pungent burnt odor which is characteristic. Restlessness and insomnia with disturbing dreams. The heart rate is not necessarily increased in proportion to the temperature. Dr. Wm. Litterer has described what he terms "explosions," which consist of a rise in temperature with rigors, followed by a profuse sweat and prostration. The cough may be a permanent symptom throughout.

The digestive tract except for tympanites is fairly free of symptoms, many are constipated.

#### DIAGNOSIS

Given a case of continued fever or one where there are periodical rises in temperature with weakness and loss of weight, one should always rule out *Brucella* infection. A positive agglutination of a titer of 1:80 (or less by several authors—1:160 by others) is considered diagnostic when history and symptomatology coincide. The titer may be much higher, even up to 1:3000 plus. A leucopenia with a relative lymphocytosis, slight or marked secondary anemia. A positive blood culture in many cases, also the intracutaneous test and complement fixation may be used.

#### DIFFERENTIAL DIAGNOSIS

The infection may be confused with typhoid, malaria, influenza, tuberculosis, septicemia, endocarditis, pyelitis, tularemia, acute rheumatic fever. The history of using raw dairy products and of animal association will be of value in arriving at a correct diagnosis.

#### COMPLICATIONS

Melitensis (goat) and porcine (hog) strains more liable to recurrences. Chronic infection is common.

Anemia, meningitis, neuritis, arthritis, spondylitis, parotitis, pyelitis, abscess, cys-

titis, endocarditis, orchitis, and vesiculitis are found. Convalescence even in mild cases is slow. Muscle stiffness, lassitude, and a loss of the normal reserve strength may persist for months after the attack.

#### MANAGEMENT

Most authorities state the treatment has been unsatisfactory as far as early recovery is concerned. This has been characteristic of the infection. Salvarsan and other arsenicals, metaphen, quinine, acriflavine, mercurochrome, atabrine, immune serum, goat serum, blood transfusion, autogenous, and stock vaccines have all been used with varying results. In this connection I wish to mention a vaccine developed by Dr. Fred Angle of Kansas School of Medicine in the Bethany Hospital Laboratories, Kansas City, Kansas, with collaboration of the Jensen Salsbery Laboratories.

The vaccine is council accepted and is described in *Journal A. M. A.* (February 6, 1932, page 480) as "a heat killed suspension in normal saline of *Brucella melitensis* variety abortus 50 per cent and porcine 50 per cent with phenol."

This vaccine has been used extensively in the State of Mississippi as reported by Dr. Felix J. Underwood with good results. (Personal communication.) It is given intramuscularly beginning with  $\frac{1}{4}$  cc. and increasing  $\frac{1}{4}$  cc. every three or four days up to  $1\frac{1}{2}$  cc. for five to seven doses, the series to be repeated if necessary.

I investigated this product before consenting to have it given me during my illness in 1933. The results were good, recovery with no recurrences to date. Dr. Angle reports in the *Bulletin University of Kansas* 84 cases of undulant fever treated with this vaccine with only 8 per cent recurrences which responded to further vaccine therapy. There were two deaths in the series from bacterial endocarditis, both being the melitensis variety.

Rest in bed is essential for a long period after the temperature becomes normal. Adequate food and water supply with sufficient vitamins are necessary. Otherwise the treatment will be symptomatic. Urinary antiseptics, sedatives may be necessary. I cannot stress too firmly rest in bed to



maintain a uniform temperature, otherwise the explosions described by Dr. Litterer will continue.

(Slides showing survey for 1934.)

### SUMMARY

Brucella infection in man and animals is increasing. The disease is a menace to the public health and should be dealt with as such by the medical profession so as to clear up the present status of a contaminated milk supply. It might be stated the tendency of pediatricians is more and more toward the use of evaporated and dry milk powders, largely because of a contaminated supply. In this respect I quote Dr. Wilburt C. Davison of Duke University on "Elimination of Milk-borne Diseases," who concludes as follows: "The use of unsweetened evaporated milk insures a safe sterilized product, and if the bacteriacidal action of lactic acid is added, the risk of milk-borne disease is eliminated." (Reprint, *Am. Jr. Dis. of Ch.*, January, 1935, Vol. 49, pages 72-78.)

What steps are necessary will have to be arrived at only after a thorough study of the subject.

I would like to see a safe milk supply such as is represented by certified milk. I am one of those who believe milk can be safe without the actual certification if produced properly. I am not here to fight pasteurization nor to recommend it as a panacea, nor have I any fight against producers of raw milk under proper supervision.

In closing I quote Dr. L. E. Starr of Vir-

ginia: "The control and eventual eradication of undulant fever in man is dependent entirely on the control and eradication of the disease in domestic animals."

I wish to express my appreciation to the physicians of Memphis and Shelby County whose cooperation only made this survey possible.

### BIBLIOGRAPHY

1. "Undulant Fever—Its Relation to Brucelliasis in Domestic Animals." L. E. Starr. *J. A. M. A.*, Vol. 102, No. 12, p. 902, March 12, 1934.
2. "Undulant Fever in Humans and Contagious Abortion in Animals." Monograph. L. C. Bulmer, 1930.
3. "Undulant Fever." C. A. Shore, North Carolina Health Department.
4. "Brucelliasis." W. B. Grayson and G. Hastings. *So. Med. Jr.*, 1933.
5. "Outbreak of Undulant Fever in New Jersey." *Jr. A. M. A.*, Vol. 99, No. 7, p. 570, August 13, 1932.
6. "Undulant Fever Due to Brucella of Porcine Type." Beattie and Rice, *Jr. A. M. A.*, Vol. 102, No. 20, p. 1670, May 19, 1934.
7. Dietrich and Bonyng: *Jr. Ped.*, St. Louis, July, 1933, p. 46.
8. Anderson and Pohl: *Am. J. Dis. Ch.*, p. 1108, 1931.
9. *Jr. A. M. A.*, Vol. 94, No. 16, pp. 1238-1240, 1930.
10. "Undulant Fever Spondylitis." Kulaski and Menke, Iowa City. *Jr. A. M. A.*, Vol. 99, No. 20, p. 1856, November 12, 1932.
11. "Pathology of Brucella Abortus Infection." Vischow and Archiv. f. Path. Auct. u. Physiol. Berlin, 268, 1, 252, September 5, 1932.
12. "Brucella Infection in Children." McBride, Daniel, and Poston. *Jr. Ped.*, St. Louis, Vol. 4, No. 3, p. 401, March, 1934.

### KEY TO SLIDES SURVEY FOR 1934

#### PHYSICIANS REPORTING CASES UNDULANT FEVER IN MEMPHIS AND SHELBY COUNTY FOR 1934

|                              |                   |
|------------------------------|-------------------|
| 1. Dr. F. W. FIEDLER .....   | 1 F.              |
| 2. Dr. W. C. COLBERT .....   | 2 F.—Total 2      |
| 3. Dr. W. T. DINSMORE .....  | 1 M.              |
| 4. Dr. H. F. CRAWFORD .....  | 1 M.              |
| 5. Dr. C. L. SANDERS .....   | 1 M.—1 F.—Total 2 |
| 6. Dr. A. R. McMAHAN .....   | 1 F.              |
| 7. Dr. C. A. SYMONS .....    | 1 M.              |
| 8. Dr. R. B. FLANNIKEN ..... | 1 M.              |
| 9. Dr. C. W. MUSGRAVE .....  | 1 F.              |
| 10. Dr. W. W. SEARIGHT ..... | 1 M.              |
| 11. Dr. E. G. THOMPSON ..... | 1 M.—1 F.—Total 2 |
| 12. Dr. H. G. RUDNER .....   | 2 M.—1 F.—Total 3 |

## SURVEY FOR 1934—Continued

|                         |                   |
|-------------------------|-------------------|
| 13. DR. C. C. CHAFFEE   | 2 M.—Total 2      |
| 14. DR. WEBB KEY        | 1 M.              |
| 15. DR. LOUIS LEROY     | 2 M.—Total 2      |
| 16. DR. W. C. CHANEY    | 1 F.              |
| 17. DR. JACOB ALPERIN   | 1 M.—1 F.—Total 2 |
| 18. DR. R. E. CHING     | 1 M.              |
| 19. DR. W. S. ANDERSON  | 1 F.              |
| 20. DR. W. G. ALFORD    | 1 F.              |
| 21. DR. J. L. BEAUCHAMP | 1 M.              |
| 22. DR. J. J. McCAUGHAN | 1 M.              |
| 23. DR. HAROLD SPARR    | 1 F.              |
| 24. DR. W. R. BLUE      | 1 M.              |
| 25. DR. OTIS WARR       | 1 M.              |
| 26. DR. E. C. MITCHELL  | 1 M.              |
| 27. DR. A. G. HUDSON    | 1 M.              |

Numbers at top represent physicians reporting cases. M—Male. F—Female. T—Total.

Vertical numerals indicate questionnaires asked, the response being in vertical column opposite.

## SLIDE NO. I

## QUESTIONNAIRE, MARCH, 1934

|                                                                                                                   | Memphis | Tenn. | Ark. | Ky.                     | Mo.            | Miss.      | Knox-<br>ville | Nash-<br>ville |
|-------------------------------------------------------------------------------------------------------------------|---------|-------|------|-------------------------|----------------|------------|----------------|----------------|
| Number of cases of undulant fever in years                                                                        |         |       |      |                         | Pos.<br>Agglt. |            |                |                |
| 1930                                                                                                              | 7       | 11    | 0    | 8                       | 135 99         | 0          | 0              | 0              |
| 1931                                                                                                              | 4       | 7     | 2    | 20                      | 162 152        | 3          | 0              | 0              |
| 1932                                                                                                              | 3       | 10    | 2    | 7                       | 179 131        | 10         | 0              | 0              |
| 1933                                                                                                              | 3       | 12    | 10   | 8                       | 79 136         | 13         | 0              | 3              |
| II. Have you city ordinance or state law prohibiting the sale of raw milk from cows infected with abortion fever? | No      | No    | No   | No                      | No             | No         | No             | No             |
| III. What per cent of cows in your dairies are infected with abortion fever?                                      | ?       | ?     | ?    | Approx.<br>80%<br>to 0% |                | No<br>Data | No<br>Data     | ?              |
| IV. Is your certified milk from cows entirely free of abortion fever?                                             | Yes     | Yes   | None | Yes                     |                | Yes        | None           | Yes            |
| V. Do you permit the sale of raw goat's milk?                                                                     | Yes     | Yes   | Yes  | Yes                     | Yes            | Yes        | None<br>sold   | Yes            |

Sent to Health Department as indicated.

## SLIDE NO. II

## QUESTIONNAIRE, MARCH, 1935

|                                                                                            | Memphis | Tennessee | Mississippi                                                                    | Arkansas                                    | Kentucky                                                                  | Missouri                                                             |
|--------------------------------------------------------------------------------------------|---------|-----------|--------------------------------------------------------------------------------|---------------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------|
| Any legislation to prohibit sale of raw milk from herds infected with contagious abortion? | No      | No        | No, but power given to Health Department to dispose of reactors January, 1935. | No                                          | No, survey for Bang's disease being made.                                 |                                                                      |
| Any recent legislation to control the sale of such milk?                                   | No      | No        | Yes<br>January, 1935                                                           | No, cattle must be negative to enter state. | Number of cities have ordinances prohibiting raw milk from cows infected. | Dairy laws in process of revision. Working with contagious abortion. |

Sent to Health Department as indicated.



## SURVEY, UNDULANT FEVER CASES, MEMPHIS AND SHELBY COUNTY, 1934

## No. 1. SLIDE III

| CASES                                              | 1                                  | 2             | 3                        | 4                  | 5                        | 6           | 7                | 8           | 9               | 10            |
|----------------------------------------------------|------------------------------------|---------------|--------------------------|--------------------|--------------------------|-------------|------------------|-------------|-----------------|---------------|
|                                                    | M F T                              | M F T         | M F T                    | M F T              | M F T                    | M F T       | M F T            | M F T       | M F T           | M F T         |
| I. Number of cases observed in 1934                | 0 1 1                              | 0 2 2         | 1 0 1                    | 1 0 1              | 1 1 2                    | 0 1 1       | 1 0 1            | 1 0 1       | 0 1 1           | 1 0 1         |
| II. Was there history of using raw dairy products? | Yes                                | 1 Yes<br>2 No | Yes                      | Yes                | Yes                      | Yes         | Yes              | Yes         | Yes             | Yes           |
| III. Did the infection originate in Shelby County? | Yes                                | One           | No                       | ?                  | No                       | Yes         | ?                | Yes         | No              | Yes           |
| Elsewhere?                                         | -----                              | One           | Texas                    | ?                  | Yes                      | -----       | ?                | -----       | Yes             | -----         |
| IV. Was there a history of animal association?     | No                                 | No            | No                       | No                 | No                       | No          | No               | No          | No              | No            |
| V. Were the victims residents of Memphis?          | Yes                                | Part time     | Yes                      | Yes                | No                       | Yes         | Yes              | Yes         | Yes             | Yes           |
| Rural districts?                                   | -----                              | Summer        | -----                    | -----              | Ark.                     | -----       | -----            | -----       | -----           | -----         |
| VI. Treatment A                                    | J & S vac. & Symptomatic           | Symptomatic   | Symptomatic & J & S vac. | Convalescent serum | One by transfusion blood | Symptomatic | Vac. Symptomatic | Symptomatic | Neosarsphenamin | J & S vaccine |
| B. Was undulant fever vaccine used?                | Yes                                | Yes           | Yes                      | Yes, no effects    | One J & S vac.           | No          | J & S vac.       | No          | No              | Yes           |
| VII. Results                                       | None at first                      | Improved      | Good                     | Recovery           | Recovery                 | Recovery    |                  | -----       | Cured           | Good          |
| VIII. Remarks                                      | Improved after attack of influenza |               |                          |                    |                          |             | Recurrence       |             |                 |               |

## SURVEY, UNDULANT FEVER CASES, MEMPHIS AND SHELBY COUNTY, 1934

## No. 2. SLIDE IV

| CASES                                              | 11                       | 12          | 13                   | 14                     | 15                                  |
|----------------------------------------------------|--------------------------|-------------|----------------------|------------------------|-------------------------------------|
|                                                    | M F T                    | M F T       | M F T                | M F T                  | M F T                               |
| I. Number of cases observed in 1934                | 1 1 2                    | 2 1 3       | 2 0 2                | 1 0 1                  | 2 0 2                               |
| II. Was there history of using raw dairy products? | Yes                      | Yes, in Two | Yes                  | Yes                    | Yes                                 |
| III. Did the infection originate in Shelby County? | Yes                      | Yes, in Two | Yes                  | Yes                    | One                                 |
| Elsewhere?                                         |                          | One         |                      |                        | One in Miss.                        |
| IV. Was there a history of animal association?     | In One                   | Yes         | Yes                  | No                     | No                                  |
| V. Were the victims residents of Memphis?          | Suburbs                  | Two         | No                   | No                     | One                                 |
| Rural districts?                                   |                          | One         | Yes                  | Yes                    | One                                 |
| VI. Treatment A                                    | Symptomatic & J & S vac. | Symptomatic | Symptomatic          | Expectant & vac. J & S | 1 with acriflavine. 1 with metaphen |
| B. Was undulant fever vaccine used?                | Yes                      | No          | No                   | Yes                    | No                                  |
| VII. Results                                       | 1 Good<br>1 Improved     | Improved    | Good                 | Good                   | Recovery                            |
| VIII. Remarks                                      |                          |             | Recovery slow in one |                        |                                     |

## SURVEY, UNDULANT FEVER CASES, MEMPHIS AND SHELBY COUNTY, 1934

## No. 3. SLIDE V

| CASES                                              | 16                                 |   |   | 17               |   |   | 18                                |   |   | 19                                   |   |   | 20                             |   |   |
|----------------------------------------------------|------------------------------------|---|---|------------------|---|---|-----------------------------------|---|---|--------------------------------------|---|---|--------------------------------|---|---|
|                                                    | M                                  | F | T | M                | F | T | M                                 | F | T | M                                    | F | T | M                              | F | T |
| I. Number of cases observed in 1934                | 0                                  | 1 | 1 | 1                | 1 | 2 | 1                                 | 0 | 1 | 0                                    | 1 | 1 | 0                              | 1 | 1 |
| II. Was there history of using raw dairy products? | Yes                                |   |   | Yes              |   |   | Yes                               |   |   | Yes                                  |   |   | No Pasteurized                 |   |   |
| III. Did the infection originate in Shelby County? | No                                 |   |   | No               |   |   | Probably                          |   |   | Yes                                  |   |   | Yes                            |   |   |
| Elsewhere?                                         | N. C.                              |   |   | 1 Miss., 1 Okla. |   |   |                                   |   |   |                                      |   |   |                                |   |   |
| IV. Was there a history of animal association?     | No                                 |   |   | No               |   |   | No                                |   |   | No                                   |   |   | No                             |   |   |
| V. Were the victims residents of Memphis?          | Yes                                |   |   | No               |   |   | Yes                               |   |   | Yes                                  |   |   | Yes                            |   |   |
| Rural districts?                                   |                                    |   |   | 1 Miss., 1 Okla. |   |   |                                   |   |   |                                      |   |   |                                |   |   |
| VI. Treatment A                                    | Convalescent serum and transfusion |   |   | J & S vaccine    |   |   | Neosalvarsan                      |   |   | Convalescent serum and J & S vaccine |   |   | J & S vaccine                  |   |   |
| B. Was undulant fever vaccine used?                | Yes                                |   |   | Yes              |   |   | No                                |   |   | Yes                                  |   |   | Yes                            |   |   |
| VII. Results                                       | Good                               |   |   | None             |   |   | Good                              |   |   | Good                                 |   |   | Recovery 1 mo.                 |   |   |
| VIII. Remarks                                      |                                    |   |   | Chronic cases    |   |   | Nine injections neosalvarsan 0.15 |   |   |                                      |   |   | Ate lettuce. No other raw food |   |   |

## SURVEY, UNDULANT FEVER CASES, MEMPHIS AND SHELBY COUNTY, 1934

## No. 4. SLIDE VI

| CASES                                              | 21                                       |   |   | 22          |   |   | 23       |   |   | 24            |   |   | 25                            |   |   |
|----------------------------------------------------|------------------------------------------|---|---|-------------|---|---|----------|---|---|---------------|---|---|-------------------------------|---|---|
|                                                    | M                                        | F | T | M           | F | T | M        | F | T | M             | F | T | M                             | F | T |
| I. Number of cases observed in 1934                | 1                                        | 0 | 1 | 1           | 0 | 1 | 0        | 1 | 1 | 1             | 0 | 1 | 1                             | 0 | 1 |
| II. Was there history of using raw dairy products? | No Pasteurized                           |   |   | Yes         |   |   | Yes      |   |   | Yes           |   |   | Not stated                    |   |   |
| III. Did the infection originate in Shelby County? | Yes                                      |   |   | Yes         |   |   | ?        |   |   | No            |   |   | No                            |   |   |
| Elsewhere?                                         |                                          |   |   |             |   |   | ?        |   |   | Ark.          |   |   | Ark.                          |   |   |
| IV. Was there a history of animal association?     | No                                       |   |   | Yes         |   |   | No       |   |   | Yes           |   |   | No                            |   |   |
| V. Were the victims residents of Memphis?          | Yes                                      |   |   | Yes         |   |   | Yes      |   |   | No            |   |   | No                            |   |   |
| Rural districts?                                   |                                          |   |   |             |   |   |          |   |   | Ark.          |   |   | Yes                           |   |   |
| VI. Treatment A                                    | Vaccine and neoarsphenamin 15 gm.        |   |   | Symptomatic |   |   | Atabrine |   |   | J & S vaccine |   |   | Vaccine                       |   |   |
| B. Was undulant fever vaccine used?                | PD & Co.                                 |   |   | No          |   |   | No       |   |   | Yes           |   |   | PD & Co.                      |   |   |
| VII. Results                                       | Good                                     |   |   | Good        |   |   | Good     |   |   | Improved      |   |   | Has not heard since went home |   |   |
| VIII. Remarks                                      | Fever subsided in 4 days after treatment |   |   |             |   |   |          |   |   |               |   |   |                               |   |   |



## SURVEY, UNDULANT FEVER CASES, MEMPHIS AND SHELBY COUNTY, 1934

## No. 5. SLIDE VII

| CASES                                              | 26            |   |   | 27                      |   |   |             |    |            |   |
|----------------------------------------------------|---------------|---|---|-------------------------|---|---|-------------|----|------------|---|
|                                                    | M             | F | T | M                       | F | T |             |    |            |   |
| I. Number of cases observed in 1934                | 1             | 0 | 1 | 1                       | 0 | 1 | TOTAL       | 35 |            |   |
|                                                    |               |   |   |                         |   |   | MALES       | 22 |            |   |
|                                                    |               |   |   |                         |   |   | FEMALES     | 13 |            |   |
| II. Was there history of using raw dairy products? | One time only |   |   | Yes                     |   |   | Yes         | 30 |            |   |
|                                                    |               |   |   |                         |   |   | No          | 4  |            |   |
|                                                    |               |   |   |                         |   |   | Not stated  | 1  |            |   |
| III. Did the infection originate in Shelby County? | Yes           |   |   | Yes                     |   |   | Yes         | 19 |            |   |
|                                                    |               |   |   |                         |   |   | No          | 12 |            |   |
|                                                    |               |   |   |                         |   |   | ?           | 4  |            |   |
| Elsewhere?                                         |               |   |   |                         |   |   |             |    |            |   |
| IV. Was there a history of animal association?     | No            |   |   | No                      |   |   | Yes         | 8  |            |   |
|                                                    |               |   |   |                         |   |   | No          | 27 |            |   |
| V. Were the victims residents of Memphis?          | Yes           |   |   | Yes                     |   |   | Yes         | 19 |            |   |
|                                                    |               |   |   |                         |   |   | No          | 12 |            |   |
|                                                    |               |   |   |                         |   |   | ?           | 4  |            |   |
| Rural districts?                                   |               |   |   |                         |   |   | Yes         | 19 |            |   |
|                                                    |               |   |   |                         |   |   | No          | 12 |            |   |
|                                                    |               |   |   |                         |   |   | ?           | 4  |            |   |
| VI. Treatment A                                    | No, specific  |   |   | Vaccine and Symptomatic |   |   | Vaccine     | 19 | Metaphen   | 1 |
|                                                    |               |   |   |                         |   |   | Symptomatic | 10 | Neo        | 3 |
|                                                    |               |   |   |                         |   |   | Conv. serum | 3  |            |   |
|                                                    |               |   |   |                         |   |   | Blood       | 1  |            |   |
|                                                    |               |   |   |                         |   |   | Acriflavine | 1  |            |   |
|                                                    |               |   |   |                         |   |   | Atabrine    | 1  |            |   |
| B. Was undulant fever vaccine used?                | No            |   |   | PD & Co.                |   |   | Vaccine     | 19 |            |   |
|                                                    |               |   |   |                         |   |   | None        | 16 |            |   |
| VII. Results                                       | Ill 3 months  |   |   | None                    |   |   | Good        | 20 | Not stated | 3 |
|                                                    |               |   |   |                         |   |   | Improved    | 7  | Deaths     | 1 |
|                                                    |               |   |   |                         |   |   | ?           | 4  |            |   |
| VIII. Remarks                                      |               |   |   | Died, June to August    |   |   |             |    |            |   |

## DISCUSSION

DR. WILLIAM LITTERER (Nashville): Mr. President and Gentlemen: Dr. Blue gave me his paper for review. He has given us a most excellent presentation of a most important subject. It is true that the actual incidence of the disease and the reported incidence fall far short as shown by the number of cases reported from Memphis and Shelby County being thirty-five as compared with reported cases by the State Department of Public Health with only twelve cases.

Undoubtedly we have just as many cases in Middle Tennessee, but I doubt if the disease exists to any considerable extent in East Tennessee, especially around Knoxville.

In 1928 I wrote a paper entitled "Discussion of Three Fevers Which Simulate Typhoid." In this paper I examined 1,200 sera and found thirteen cases of undulant fever, six endemic typhus (Brill's disease) and thirty-two tularemia cases, all presenting typical clinical histories. I believe these were the first cases reported in the state.

Considerable progress is being made at the present time in which a state-wide survey of Bang's

disease by the U. S. Bureau of Animal Industry, Washington, D. C., is being conducted and in which they have examined since last July over 25,000 bloods and have found about 24 per cent of them positive to Brucella infection.

The disease is undoubtedly on the increase, especially in rural areas, less so in the cities for the reason of the pasteurization of milk and lack of contact with animals. There is no doubt that many people are immune to the infection. I had a case in which one man was infected out of fifteen individuals supplied with milk from two infected cows. Eight of these individuals had agglutinations in their bloods, ranging from 1-10 to 1-60. Clinically they were all right. Six months later two of these individuals developed Brucella infection which showed an agglutination titer of 1-320 and 1-640, respectively. The milk was withdrawn from all the people, and at the end of six months the agglutinations had disappeared in the six but persisted in the two that were infected.

Ordinarily an agglutination of 1-80 is diagnostic, but I have seen two cases in which the agglutination did not run over 1-20. One case had an agglu-

tionation of only 1-10, in which I isolated the *Brucella* bacillus, variety porcine, from his blood. Likewise the *Brucella* bacillus, variety porcine, was isolated from the case showing an agglutination of 1-20. These two cases had a very stormy course indeed. The treatment that did the most good was an autogenous vaccine. It stimulated the agglutinins and antibodies in the patient's blood to such an extent that the two patients which started with 1-10 and 1-20 reacted later with an agglutination titer of over 1-640.

I believe that vaccine, whether autogenous or stock vaccine, is the ideal treatment for *Brucella* infection, because you have remissions followed by explosions. It is during the remissions or after the explosions have subsided that the vaccine should be given. Profound rest in bed is also a most important factor for recovery.

I was a victim of this disease, having acquired it by accidental laboratory experimentation. Profound rest in bed and an autogenous vaccine resulted in a cure.

Very little has been accomplished towards preventive measures as far as the consumers of contaminated dairy products are concerned, and it is high time that something should be done.

DR. W. R. BLUE (closing): I wish to thank Dr. Litterer for his able discussion. I would like to go over this symptomatology a little more. The onset is usually insidious but may be sudden in severe infection; malaise, anorexia, followed by weakness and prostration; aching, generalized, particularly in the back; a sense of flushing in the face in the afternoon; in the morning, in mild or ambulatory cases the patient will be refreshed after a night's rest, only to tire out as the day progresses; a rise in temperature from 99 3/5 to 105 depending on the severity of the infection; a definite loss in weight with prostration is present; rigors, cough, headache, catarrhal stomatitis, muscle stiffness, particularly of the neck and extremities. The temperature curve may be inter-

mittent or remittent, sweating of the upper chest and neck as well as in the axillae, with a peculiar pungent odor which is characteristic; restlessness and insomnia with disturbing dreams. The heart rate is not necessarily increased in proportion to the temperature.

Dr. Litterer has described what he terms "explosions." I have never seen that term anywhere else, and I think he is the author of it, which consists of a rise in temperature with rigors, followed by a profuse sweat and prostration. That is a typical description of just what happens. The cough may be a permanent symptom throughout, to such an extent that many of these cases are suspected of having tuberculosis.

The digestive tract, except for tympanites and some pain in the abdomen that is not consequential, is free of symptoms. Many are constipated.

Regarding this vaccine, I would like to say that most of these cases, nineteen, received vaccine in this series. Three had one kind of vaccine and sixteen had another. These sixteen that I talked about had Dr. Fred Angle's vaccine. It is one which is very popular in the South and Southwest in particular. Dr. Simpson has one in the East that is used a great deal.

There is a recent article in the Southern Medical this month by Dr. S. C. Fulmer, Little Rock, Arkansas, a very good article, in which he reports some good results from Simpson's vaccine.

This is a disease which we all should look for every day in seeing our patients with continued fever or recurring temperature, by all means we should run an agglutination test, and if I am not mistaken (I hope Dr. Litterer will correct me if I am) these agglutination tests should be run with fresh blood. Is that not right, Doctor?

DR. LITTERER: Yes.

DR. BLUE: The dry agglutination that you send to the laboratory such as for a Widal for typhoid in many instances will not show up positive as a fresh specimen would.



## OCULAR TUBERCULOSIS—TUBERCULIN\*

ROBERT J. WARNER, M.D., Phar. D., F. A. C. S., Nashville

IT HAS long been recognized that as a general rule patients with proven tuberculosis in tuberculosis sanatoria show comparatively few tuberculous eye lesions. Likewise, ocular tuberculosis is not usually found associated with pulmonary tuberculosis, but is more generally associated with such lesions as tracheobronchial tuberculosis, tuberculous adenitis, tuberculosis of the bone, etc. Goldberg and Fabricant found in 1,073 cases of proven tuberculosis that less than one per cent showed evidence of tuberculosis of the uveal tract, and only about two per cent showed any evidence of fundus disease. They believed that tuberculosis of the eye is not so common as usually supposed and, when it occurs, is due to the embolic localization in the eye of tubercle bacilli from the blood stream. Crowe of the Davidson County Tuberculosis Hospital reports: "We have long been interested in 'ocular tuberculosis' because of the noticeable infrequency of such cases seen here, except in miliary tuberculosis, and in the last few weeks of life in those cases of sudden widespread fulminating tuberculosis. Excluding those terminal cases, we have had five cases of extraocular tuberculosis and two cases of intraocular tuberculosis in the past ten years, or for 3,634 admissions." On the other hand, Werdenberg, who has extensively studied both general and ocular tuberculosis in Switzerland, states that his clinical and X-ray studies have never shown completely negative lungs in patients with ocular tuberculosis. In 120 patients with ocular tuberculosis, 90 showed slight pulmonary changes, and 30 others showed serious or advanced affections of the lungs. The slight changes were found in the hylus lymph nodes, apices, lower lungs, and the pleura. Axenfeld believes that eye tuberculosis develops only after invasion of the

bronchial glands, but usually is not found in patients with frank pulmonary tuberculosis. Moreover, he believes ocular tuberculosis is extremely common and accounts for a great proportion of chronic ocular inflammations, focal infection playing only a minor role.

Every chronic eye trouble is suspicious, and if other causes can be excluded, tuberculosis must be considered. The diagnosis of a tuberculous eye lesion in many cases cannot be made with certainty from the clinical picture. Heine says that there are two ways of estimating the tuberculous nature of an eye lesion: (1) clinical examination of the eye and general examination of the patient, including family and personal histories; (2) the specific reaction to tuberculin. Otherwise the diagnosis can only be made by the demonstration of the tubercle bacillus, microscopic examination of the tissue or by animal experiment.

The most satisfactory tuberculin test in eye conditions is the subcutaneous one. With this, three reactions can be distinguished: general, local (site of injection), and focal (in this case, the eye). The test consists in the subcutaneous injection of Koch's old tuberculin in 1, 3, and 5 mg. strength; children receive one-half mg. A favorable site for injection is the arm. It is an absolute rule that the patient must be afebrile; it must be noted that the temperature does not rise above normal for two days before the injection. The temperature should then be taken every two or three hours. A strikingly subnormal temperature is not infrequent in these cases. The patients are to be kept quiet and in bed if the reaction begins to show itself. After twelve to twenty-four hours, sometimes on the second day in the positive cases, a febrile reaction of from 1 degree to 3 degrees ensues. The temperature rises abruptly, then gradually decreases by lysis. This is the typical febrile reaction. If after forty-eight to seventy-two hours there has been no rise in temperature 3 mg. is given, then, if neces-

\*Read before the Tennessee Academy of Ophthalmology and Otolaryngology, Nashville, April 8, 1935.

sary, after the same length of time 5 mg. More patients react after the second than after the first injection. If there is no reaction after the third (5 mg.) the condition is regarded as not tuberculous. Associated with the rise in temperature there are other important symptoms, accentuation of the pulse, chill, headache, pain in the extremities, backache, and general malaise. These symptoms generally last but one day.

There are two views concerning the therapeutic action of tuberculin:

1. The use of tuberculin injections in the treatment of focal tuberculosis lesions rests upon the fact that the production of extremely mild inflammatory reactions about the tuberculous focus appears to stimulate the resistances of the body and to facilitate healing.

2. Tuberculin therapy results in abolishing an allergic hypersensitivity, for allergic individuals may be so treated that they are ultimately able to tolerate enormous doses without inflammation, necrosis, or constitutional symptoms.

Tuberculin treatment in its modern application is the work of Von Hippel. It consists in a form of active immunization, a stimulation of the body's natural protective resources, and depends, generally speaking, on the use of infinitesimal doses and the avoidance of the slightest local or general reaction. The injections should be given at definite intervals and continued over a long length of time.

Fishburg says that tuberculin injections produce a mild transient leukocytosis.

While there is some disagreement as to the value of tuberculin therapy, the predominance of opinion strongly indicates that tuberculin is a therapeutic weapon of the highest value in ocular tuberculosis.

Tuberculosis may involve any part of the eye.

*Conjunctiva*—Tuberculosis of the conjunctiva usually occurs in the palpebral portion, especially the upper, and then extends to the retrotarsal folds. It may begin in the latter situation or rarely in the ocular conjunctiva and in the semilunar fold. The disease is often limited to one eyelid, which

externally shows an increase in size and resistance with increased secretion.

Sattler has described four principal forms: First, that which resembles the usual tuberculosis of the mucous membranes in other parts of the body. Second, there are numerous small grayish nodules like trachoma follicles with very slight tendency to necrosis and signs of caseation. These occur in the retrotarsal folds, in the semilunar fold, and in the ocular conjunctiva. In the third variety, the proliferation in the palpebral conjunctiva is more marked with pronounced mucopurulent discharge. The surface of the conjunctiva looks like a mass of exuberant granulations. The fourth variety is lupus of the conjunctiva.

*Cornea*—Aside from the deep keratitis which accompanies scleritis, the cornea is affected in the tuberculous patient in a form of keratitis characterized by circumscribed opacities in various layers of the cornea. These opacities enlarge irregularly, become vascularized, and are usually accompanied by very little inflammatory reaction. There will often be associated deposits on the posterior surface of the cornea. A small proportion of interstitial keratitis is due to tuberculosis.

*Sclera*—Tuberculous scleritis is secondary to disease of the anterior uvea. This explains the frequent complicating corneal process known as sclerosing keratitis, which leave permanent tongue-like opacities. The congested scleral area shows a distinct nodular prominence which is usually red and painful.

*Uvea*—Tuberculosis of the uvea usually develops slowly and the condition may exist for months before the patient seeks relief.

The symptoms are therefore mild, consisting in a disturbance in vision, tearing, photophobia, moderate congestion, and slight or no pain. Usually only one eye is involved. The inflammatory symptoms may be absent or are usually very slight. The iris, when there is a single large tubercle, appears practically normal; sometimes it is somewhat discolored, with distinct blood vessels, with a variable number of posterior synechia, or the anterior lens capsule is cov-



ered with an exudate. The tubercles usually appear as such from the beginning.

*Choroid*—There are a number of forms of choroiditis which are in etiological relation to tuberculosis. The one which has been known for the longest time is that occurring in miliary tuberculosis. It is usually seen in children, and lesions are visible a few days before death.

*Disseminate Choroiditis*—Cases of disseminate choroiditis are probably more frequently tuberculous than is generally supposed. The ophthalmoscopic characteristics are not easily defined. There is perhaps a general tendency for a smaller amount of retinal pigmentation than is usually present in this form of choroiditis, there are fewer vitreous opacities, and the blood vessels in the exposed choroidal atrophic areas are not so visible.

*Posterior Ocular Tuberculosis*—By far the most common type seen is the posterior ocular tuberculosis associated with retinal hemorrhage into the vitreous. This diseased picture in the eye is uniform in that it generally affects young adult males. Occasionally one finds, in addition to the retinal disease, an iridocyclitis, which may be due to the same cause. The condition is viewed today in Germany as a tuberculosis of the retinal vessels, and its occasional occurrence in tuberculous subjects, as well as the histologic observations, seems to speak in favor of this interpretation. As a matter of fact, definite indications of tuberculosis are clinically lacking in most cases, and this is explained by the axiom that true ocular tuberculosis and pulmonary phthisis are not often seen together. If examination is directed to this end, one can elicit in these patients symptoms of thromboangitis obliterans (Buerger), a condition which may lead to gangrene of the extremities in youthful, predominantly male subjects. The involvement of the retinal vessels which leads to thromboses, obliteration of vessels, hemorrhages, and the formation of anomalous anastomoses, represents an ocular localization of Buerger's disease. The fact that this pathologic process may run its course in any one or in a number of different vascular areas of the body has of

late acquired increasing significance in pathology (Jaeger).

Tuberculin tests were not made in all the cases to be reported by me, as some of the patients refused to go to bed for the length of time necessary for the test. Foci of infections were cleared up and the eyes showed no improvement so, strictly speaking, my case reports are the result of the use of tuberculin, some of which cases were not proven tuberculous.

#### CLASSIFICATION OF MY CASES

The fourteen cases here reported are grouped under five general headings according to the predominating eye lesions: Episcleritis, Sclerosing Keratitis, Uveitis, Posterior Ocular Tuberculosis, and Keratitis. Phlyctenular keratitis is not included in this series, as typical tubercular bacilli have never been demonstrated in phlyctenules, and the histologic picture of the phlyctenules is not the classical picture of a tubercle. Although the installation of tuberculin into the conjunctival sacs of patients hypersensitive to tuberculin may cause the appearance of phlyctenules, the installation of horse serum into the conjunctival sac of patients hypersensitive to horse serum will cause the same appearance. The evidence in favor of phlyctenules being an allergic reaction of the sensitized epithelial surface of the cornea and the conjunctiva appears to be conclusive.

##### 1. *Episcleritis*:

Four patients with episcleritis were treated with tuberculin. Three cleared up without recurrence, one had a recurrence in six months, and with additional tuberculin treatment cleared up and has remained clear for several years.

##### 2. *Sclerosing Keratitis*:

One case of sclerosing keratitis of eight months' duration when tuberculin treatment was started showed slight improvement. This case is still under treatment.

##### 3. *Uveitis*:

Two cases of uveitis improved under tuberculin treatment.

##### 4. *Posterior Ocular Tuberculosis*:

Six cases of posterior ocular tuberculosis

were seen. One, a child with miliary tuberculosis, was seen by me one day before her death. She had a single tubercle of choroid. The other five cases had hemorrhagic retinitis of young adolescents (Eales's disease). Four of these cleared up with tuberculin treatment. One, a high myope with old bilateral retinal hemorrhage and extensive vitreous opacities, had been receiving syphilitic treatment for two years without improvement. His Wassermann was negative before and after the luetic treatment. Diagnostic tuberculin gave a positive diagnosis after the second injection. Tuberculin treatment was given him and the vision in this case improved from 20/100 and 10/200 with glasses to 20/50 and 20/20 with glasses. Some of the vitreous opacities remain in the eye. He is still taking tuberculin twice a week.

#### 5. Keratitis:

One case of keratitis complicated with corneal abrasions and iritis will be reported in detail.

Dr. E. E. R., age 49; first seen by me on July 1, 1934. Previous history: Since 1929 has had many attacks of sore eyes and dermatitis of his face. He had consulted many leading ophthalmologists and dermatologists of this country, several of which diagnosed his case as acne rosacea keratitis and acne rosacea dermatitis. He had many different kinds of treatment, including numerous X-ray treatments to his eyes and head. Many physical examinations were negative, but two men had irrigated his maxillary sinus without improvement to his eye or facial condition. The onset of the present attack was February, 1934, five months before I saw him, and he had been unable to attend his surgical practice during this recent attack.

Examination of eyes: Vision hand motion one foot in each eye, very marked photophobia and extensive iritis. Many corneal abrasions of both eyes which stain with fluorescein. No intraocular examination could be made due to the excessive photophobia and pain. He had dermatitis of face, scalp, and mastoid areas. Atropine sulphate, yellow oxide ointment, and patch were applied to the eyes, and I immediately

gave him the initial therapeutic dose of old tuberculin.

He was referred to a local dermatologist who agreed to the previous diagnosis of acne rosacea dermatitis and several doses of X-ray treatment were applied to the dermatitis without any improvement.

His eyes were dressed daily and increasing doses of tuberculin were given him on alternating days. He was given cod-liver oil three times a day. One month later there was no iritis, the atropine was stopped, but the tuberculin and cod-liver oil were continued for two and one-half months. The dermatitis cleared up so much under the tuberculin treatment that the dermatologist changed his diagnosis to tuberculid (Lowendowski syndrome).

The eyes improved and he was finally dismissed September 5, 1934, with a vision of 20/30 in his right eye and 20/20 in his left eye and with his presbyopic correction had perfect reading vision. He has now returned to the practice of surgery and reports to me that he has had no discomfort in carrying on his occupation.

[Progress note. The above case of keratitis was seen by me September 2, 1935. He has had a recurrence of the keratitis in the right eye and a central corneal opacity with very extensive deep vascularization of the cornea. There has been no recurrence in the left eye. The dermatitis is greatly improved.]

#### DISCUSSION

DR. WILLARD STEELE (Chattanooga): To the members of the Academy:

Dr. Warner has just presented to this section a most timely paper on a subject that is now engaging the attention of ophthalmologists throughout the world and a more controversial subject he could hardly have chosen.

In the main I am thoroughly in accord with the sentiments and views expressed in his paper, but in a perusal of the literature on this subject one is so confused and bewildered by such a wide divergence of opinion that I do not know where I stand.

I would like to sound this warning to you. Do not wax overenthusiastic over tuberculin therapy. On the other hand, I certainly do not want you to throw away tuberculin from your list of therapeutic agents.

Strange as it may seem, and so well pointed out by Dr. Warner, in our institutions for the tubercular the occurrence of ocular manifestations is



comparatively rare. Drs. Goldberg and Fabricant, in an article published in the archives in 1931, state that in examining over one thousand tubercular patients, less than one per cent showed tuberculosis of the uveal tract, and about two per cent showed evidence of tuberculosis of the fundus, and they state that tuberculosis of the eye is not encountered as often as the literature would lead us to believe. On the other hand, Drs. Finnoff, Gray, King, Friedenwald, and others are inclined to think that there is more tubercular ocular involvement than is commonly recognized. Which opinion is correct is to be determined by the future.

The method of infection is somewhat in doubt but is usually supposed to be due to blood stream infection, more than likely embolic in character, this contention being borne out by the fact that most ocular tubercular cases are unilateral and by the fact that the eye itself is rather devoid of lymph vessels.

The diagnosis of tubercular ocular disease is usually arrived at by exclusion of all known causes, plus the use of the tuberculin test. Here is another controversial point—whether the test is best made by the intradermal or the subcutaneous injections is championed by different people. I prefer the intradermal and in my hands it has proven to be just as accurate as any other method. It is certainly much easier to give and the patient is more agreeable to taking the test.

We must not lay too much stress on a positive tuberculin test. A positive test shows a reaction to either an active or a possibly healed tubercular process and it has been stated that forty to fifty per cent of all people over two years of age give a somewhat positive reaction in some degree. Right here this statement is subject to discussion and dissent. At our local hospital for tuberculosis, Pine Breeze, Chattanooga, they contend that very few people give a positive reaction unless there is or has been a recent tubercular process.

A negative test shows there is no reaction to the dead or viable bacilli, but there are numerous factors that might and do interfere with the test; namely, the test may be made prior to the period of incubation, which is four to eight weeks, and is similar in this respect to typhoid, for the Widal in the first few days of illness is negative and later will become strongly positive. Severe illness accompanied by fever will often make a negative test when there is a positive tubercular lesion present. Some physicians advocate giving enough tuberculin to get a focal reaction rather than a local reaction, but I think this has been abandoned by most men. When asked recently the merits of the focal reaction of tuberculin, Dr. Finnoff stated that he had observed as strong a focal reaction from injections of milk or typhoid vaccine as he had from tuberculin injections. It is too difficult to come to any definite opinion as to the value of the tuberculin test, as far as the focal reaction is concerned.

I will say this, that in the face of a positive tuberculin test, all other facts having been eliminated, you are justified in treating any chronic, stubborn ocular disease with tuberculin injections.

I cannot help but wonder why tuberculin therapy has been discarded in practically all fields of medicine except ophthalmology. Is ocular tuberculosis of an entirely different type, or is the bacillus of a different strain when it involves the eye than in other structures?

Before tuberculin therapy is begun a most searching history should be taken and a careful checkup made. If any active tuberculosis is found, tuberculin treatment should be instituted with the utmost caution.

What type of ocular disease should tuberculin be used in? According to Ranke, nearly all tubercular or suspicious cases should receive tuberculin, and he further states that it is only a matter of time before its therapeutic value will be acknowledged by all. On the other hand, Goldberg and Fabricant have entirely discontinued the use of tuberculin at the Illinois Eye and Ear Clinic, depending entirely on constitutional and hygienic measures. Werdenberg considers tuberculin contraindicated in the highly allergic exudative types while Eggston, Gray, Friedenwald, and others consider this the exact type to use tuberculin in.

Dr. Eggston says:

"In the light of the most recent investigations, tuberculous lesions may occur in several forms. When the bacterial bodies are actively present, a well-organized tubercle occurs as a tissue response to the infection, and this is the true tuberculous process. On the other hand, many conditions, undoubtedly of a tuberculous nature, occur in response to the toxin of tuberculosis and are considered of an allergic nature, namely, serous pleurisy, skin tuberculids and various ocular lesions in which no tubercle or bacilli can be demonstrated. These lesions are not true tuberculosis, but are allergic phases of the disease. It is important that ophthalmologists recognize the distinction of the two processes. This distinction will have an important weight in deciding for or against the use of tuberculin as a therapeutic agent. This distinction has not been sufficiently appreciated in the past and undoubtedly explains the variable reports of the value of tuberculin in the treatment of ocular lesions. Tuberculin is unlikely to produce favorable results in the tuberculous infected lesion and may produce injury, while it is the drug indicated and acts specifically in the allergic cases."

I feel, along with King, Finnoff, and others, that as long as the dosage is small and gradual enough so as to get no focal reactions, it is clearly indicated in all those cases where the usual causes have been eliminated with a positive tuberculin reaction present.

The whole subject of ocular tuberculosis is controversial, the frequency of occurrence, the method

of making the tuberculin test, the efficacy of the treatment, the types to use it in, etc., etc., but I feel very much like Dr. Warner, that any chronic or relapsing ocular condition that does not improve under any ordinary routine and after all foci have been removed, should have the benefit of tuberculin therapy.

I am pleased to report that I have had success in several cases that was phenomenal and while one or two have been rather disappointing in the final results, until something further is developed that is better for the use of these obscure cases, I will continue the use of tuberculin when a tubercular lesion has been diagnosed.

**DR. G. H. BERRYHILL (Jackson):** Dr. Warner's paper is very timely in that it brings to mind the fact that ocular tuberculosis is more common than we have generally suspected. The diagnosis of an ocular tuberculosis is not easy. Observation and experience with clinical symptoms mean much to each individual in arriving at a diagnosis. The tuberculin test is a great aid, but a positive tuberculin test in a patient with ophthalmic symptoms is not absolute evidence that the patient has tuberculosis of the eye. However, if clinical signs are present and the tuberculin test is positive, one can be reasonably safe in making a diagnosis of ocular tuberculosis and instituting tuberculin treatment. There is no question but that many chronic eye lesions are diagnosed as focal infection when they are really tuberculosis.

Finnoff reports a group of symptoms which accompany a certain form of uveal tuberculosis. 1. Keratitic precipitates of the mutton fat variety. 2. Evanescent grayish nodules at the pupillary margin of the iris. 3. Increased intraocular tension. 4. Vitreous exudates. 5. One or more yellowish tubercles in the choroid. Hypertension does not develop in all cases of tuberculous uveitis. They continue their course with keratitic precipitates, evanescent nodules at the pupillary margin of the iris, vitreous exudates and choroidal tubercles. The addition of hypertension as a major symptom places the group in a separate category. The severe cases of the anterior segment should be treated as a patient suffering from pronounced disease of the lungs. Rest in bed under the most favorable conditions, with general supportive measures, is very important. Only by building up these patients can one hope to accomplish anything by treatment.

There seems to be a variance of opinion as to whether tubercular lesions of the eye actually occur. It is thought by many the ocular lesions frequently diagnosed as tuberculosis in a patient who has positive reaction to tuberculin are really not due to an infection by tuberculous bacteria, but are allergic in nature and that actual tuberculosis infection in the eye is relatively rare. And yet there are many of the opinion that the lesions in the eye are found as often or more often than the allergic cases. If there is a distinctive tubercle formation, it is most likely an infectious lesion. If the lesions are diffuse, exudative or hemorrhagic they are probably of the allergic type.

Gomez divides tuberculous ocular lesions into three groups: 1. External tuberculous ocular lesions in which the bacillus can be demonstrated. 2. Intraocular tuberculous lesions in which the diagnosis must be made by exclusion. 3. Nontuberculous lesions due to an allergic hypersensitivity arising from tuberculous infection.

The use of tuberculin as a therapeutic measure has been more or less discarded by all of the profession except the eye men. It may be that their using it, and getting the favorable results which unquestionably comes from its use, will stimulate the general men to its more effective use in general tuberculosis, and thus place tuberculin treatment back in the good graces of the general profession.

Tuberculin, as a therapeutic measure, should be used with great care if there is a definite infectious lesion because reactions are more hazardous in those cases. Eggston claims that injections of tuberculin are of value in the allergic cases but are of questionable value in those cases with definite ocular lesions.

From the records it seems that it is of great benefit in all forms of ocular tuberculosis. The most spectacular results are obtained in tuberculosis of the cornea. The best results are obtained in those cases in which the treatment is begun in the early stages of the disease. Many eyes are lost before treatment is ever begun. Almost every case of ocular tuberculosis will recover if treatment is begun early enough and a thorough course is given.

Dr. Krug is of the opinion (and he bases this opinion on personal experience) that in a true tuberculous process in the eye one must get a reaction at some time from the use of tuberculin in order to obtain the best results of treatment. He says that a reaction should be welcomed, but thereafter one should be careful in increasing the dosage.



## VERSION—ITS INDICATIONS AND ADVANTAGES\*

G. W. STONE, M.D., Knoxville

ADVOCATION of the use of any method of obstetrical interference should be governed by the maternal and fetal morbidity resulting from it. We can justify its use only when we prove that these figures are no greater than those compiled from other methods of delivery.

It has been the privilege of the writer to observe Dr. Irving W. Potter, of Buffalo, New York, in several deliveries where the version method was used most effectively and satisfactorily.

Dr. Potter made a careful study over a period of years of morbidity resulting from the use of version as compared with other methods of deliveries. His decision as a result was that the fetal mortality compared favorably with that of any other method of delivery with less danger to the mother. His experience was that the mother's soft parts were not injured seriously, those occurring being readily repaired, nor did she have any serious hemorrhages.

He also found that the period of involution was shortened, with less lochial discharge during the lying-in period. He attributed the rapidity of recovery of his patients to the elimination of shock caused by protracted anguish of a long second stage of labor. His final observation was that the variation of figures of other practitioners and hospital services was so great that an exact comparison was impossible; but that in his judgment, version was justifiable through his favorable comparisons with other operators.

After observing Dr. Potter's work in Buffalo, the writer very effectively used the version method over a period of months in Harlem Hospital, New York. By the observation of patients, it was noted that mothers delivered by the version method had greater strength, were more satisfied, less nervous, and much happier at the end

of the puerperium than those where other methods were used.

The time to do a version is determined by the physical characteristics of the patient, the extent of cervical dilatation, and the condition of the fetus. As a rule, women having normal pelvic measurements can be delivered of a living child as soon as the cervix is completely dilated. If the case is a multipara I do this routinely in all abnormal head presentations, thus eliminating many of the bad results that will follow a protracted second stage labor. We always find a certain amount of shock attendant upon labor; therefore if we can largely eliminate the pain by bringing about an early delivery, we will save the patient's strength and energy, bringing about a quicker recovery and making her more willing to have a larger family. The use of version in the early second stage also eliminates injuries caused by resistance from below brought about by long labor with the constant driving force coming from above as in prolapsed cord, shoulders presentation, and persistent posterior position of the occiput. In this way we get less trauma of the mother's soft tissues, also the chance of injury to the child's head is lessened by shortening the length of time that the head is in the pelvis.

Many authorities say there is greater danger in the use of version with a primipara than with a multipara. In my experience I have had no complications resulting from version with a primipara that made me feel that the method should be abandoned in such cases. On the other hand, I have found many uteri as large with the first pregnancy as in any succeeding pregnancy. With a primipara, our great problem is to overcome the rigidity of the lower passage, which can be effected by properly applied manual dilatation. Trauma in the upper birth canal in such cases is very rare.

We very frequently find cases where we have absolute or partial cessation of pain when dilatation of the os is more or less complete, yet unassociated with any abnormality

\*Read before the Tennessee State Medical Association, Nashville, April 9, 10, 11, 1935.

of the position of the child or any malformation or contraction of the pelvis. In these cases labor is retarded absolutely by inertia, the uterus has almost no driving force, the contractions having no power, and being too infrequent to be effective. Such conditions are found both in the primipara and in the multipara. Version could be used to especial advantages in this type of cases and should not be delayed too long, because the patient will soon become exhausted and the chance of delivering a live child will be very greatly lessened.

Another type of case where version is used to advantage is that of a pendulous abdomen. If the pelvic measurements are not too greatly reduced, an early version is indicated, because the exertion of the uterine force is against the axis of the birth canal, and will be prolonged if the patient is left to herself.

The use of version is especially indicated when a patient has large varicose veins of the vulva, vagina, and thighs; because in such conditions there is grave danger of hematoma, as the veins are likely to break down and become infected during long labor, causing serious puerperal complications.

We find the use of version very effective in the moderately contracted pelvis. In such cases we frequently find protracted labor, especially in border-line cases where Caesarean section is not indicated, but it is necessary to shorten the period of labor. Ordinarily, version is not any more difficult in these cases than it is with a normal pelvis, and with an early delivery the obstetrical shock, and the bruising of the soft parts, which are often the forerunner of infection, are eliminated.

In multipara cases of placenta previa marginalis version is the best method to use. If the os is not sufficiently dilated deep anesthesia will make it possible to produce manual dilatation. Both feet are then brought down and the child is delivered. Never depend upon a single foot to "plug the cervix." When the above diagnosis is made, labor should be hastened as fast as possible to avoid any probable hemorrhage. It is hard to judge the amount of bleeding,

but in case there should be a concealed hemorrhage, prompt operative interference would lessen the danger to both mother and fetus. If the patient is a primipara with undilated cervix, or has a complete placenta previa, the best operative procedure is a Caesarean section, rather than version which cannot be satisfactorily used at such a time.

We often find a condition where the hand presents beside the head, which causes prolonged labor, because rotation will be very slow and incomplete. For the head will never present properly if left to rotate spontaneously.

Other malpositions where version may be used to advantage are shoulder presentations, face presentations with chin anterior or posterior, transverse presentations, both hands presenting, and one hand and cord presenting.

As I stated in my paper on "Technic of Podalic Version," which I read before the Knox County Medical Society, December 9, 1924, the success of the use of version in obstetrics depends largely on the anesthetist, for the patient must be completely relaxed before the operator begins if the best results are to be obtained, and the success also depends absolutely upon the coolness, caution, and knowledge of what procedure to take on the part of the operator.

#### DISCUSSION

DR. C. W. FRIBERG (Johnson City): Mr. President, Members of the Society: While at Sloane Hospital we had the pleasure of seeing Dr. Potter do two versions. He is a master of the art and the way he makes a difficult task easy is remarkable. The ease and time he takes, when the old method was speed with someone counting time for the operator, is quite a contrast. The secret is full dilatation of the cervix and vagina, with surgical anesthesia, and either Potter's or Piper's method of extraction.

Malposition of the fetus is where version can be used to a great advantage instead of difficult forceps extraction.

In placenta previa in the multipara, I do think it advisable to complete delivery, with version and breech extraction, instead of the old method of plugging, which may lead to a sudden severe hemorrhage. Some advise removing the placenta manually after delivery and inserting packing in the uterus after repairs have been made. You should always examine the cervix in these cases.



The patient in long labor with slow dilatation, almost complete, and then with cessation of pains, if not to be exhausted is helped by rest with morphine or sodium amytal. After sleep the pains in most cases become harder and delivery is completed. If the case does not advance, under surgical anesthesia version and breech extraction are indicated over difficult forceps. In prolonged labor the time of recovery is drawn over a period of weeks unless the patient is assisted. The patient should not be allowed to be in the second stage for longer than one hour until she is assisted.

I disagree with Dr. Stone in regard to the pendulous abdomen type. I think a tight binder applied properly will help in these cases.

Version and breech extraction are ideal in cases where they are indicated, but we must never forget the fetal mortality and the trauma to the mother even in expert hands. It is very easy to produce trauma to the aftercoming head and severe lacerations to the mother. When doing one, always remember the things that are essential, as full dilatation of the cervix and vagina, surgical anesthesia, and the proper method, taking time and patience after the bladder and rectum have been emptied and the patient is in the proper position.

DR. R. O. TUCKER (Nashville): Gentlemen, it was my good fortune a few years ago to spend two weeks in Buffalo watching Dr. Potter in his work. He is a wizard in doing versions, and frequently he gets remarkable results, but the only chance that the baby has to get into the world normally in Potter's work is to get into bed before Potter gets there. (Laughter.) He does a version or he does a Caesarean section, and if kept up along that line obstetrics will be a lost art.

I do believe that Potter has taught us a good deal about doing versions, especially in the dilatation of the lower birth canal. It takes fifteen to twenty minutes to dilate successfully in the primipara.

Following Potter they are teaching in the mechanism of labor in college only two operations, version and section. I think, though, that version is not done often enough in general practice. I agree with Dr. Stone that in a great many malpositions version is much preferable to any other operation. For instance, in occipitoposterior position a version is much more easily performed, with less trauma to the mother and less danger to the baby than a forceps operation. In a transverse position it is the only thing to do; you have got to do a version before you can deliver the baby.

In the face presentation or mentoposterior position version is to be preferred. In mentoanterior position if every other thing is normal labor can be terminated without interference.

In placenta previa marginalis version is to be preferred. In centralis with a rigid cervix, of course, we all know that Caesarean section should

be done, but I do object to what Dr. Stone has remarked about dilating the cervix in placenta previa manually. That is a dangerous procedure. You are dealing with a soft, friable cervix, and if you go in there and attempt to dilate manually there is great danger of a tear, reaching up into the body of the uterus. Under those conditions a bag would be much better. The bag will control the hemorrhage and will give you sufficient dilatation to do the version if it is indicated.

We first see a woman in labor and we examine her, the cervix is not dilated, we feel a portion of the placenta, a diagnosis of placenta previa centralis is made, whereas in actual full dilatation you may have just a partialis or marginalis, you have made a mistake as to the character of the trouble.

In eclampsia where you have indications for version, where you need a rapid delivery and you have a full dilated cervix, remember that in doing versions, as has been impressed by both the speakers before me, first you must have a fully dilated cervix, second a dilated lower birth canal. If you attempt to do a version before you get full dilatation, of course, you will not only traumatize the cervix but you will in all probability lose your baby, because the cervix will clamp down on the neck there and before you can deliver it you have lost it.

If you fail to dilate the lower vaginal passages there is danger of laceration, danger of the head becoming extended and losing your child.

Potter's method takes time and the mistake that most of us have made in doing versions is hastening the delivery. Remember that there is no danger to the fetus until the umbilicus shows at the outlet, there is no pressure on the cord until that occurs, and we can take all the time we need to make a slow extraction and finish the dilatation as we proceed.

The anesthetic. The woman should be carried to the full surgical degree. The anesthetic that Potter uses is chloroform exclusively, and I am old-fashioned enough to believe that he is right. I use chloroform in my own practice almost exclusively when I need a surgical anesthesia. The only trouble about it is that I find the young men are afraid of it and don't give it right. I don't know whether it is because they are not taught how to give chloroform anesthesia in the colleges or not, but when you say chloroform to them they throw up their hands and turn white and the operator has got to watch the anesthetist as well as do his own work.

Dr. Reynolds, who is Potter's assistant and gives all his anesthetics, told me he had given over 5,000 chloroform anesthetics without any immediate or after results.

DR. MILTON SMITH LEWIS (Nashville): I am awfully sorry I can't agree with Dr. Stone. In my opinion Potter's teaching of routine version is

dangerous. It is true that labor may become a pathological affair in a large majority of instances but we are not yet ready to convert every labor into a pathological one and a major one at that.

That podalic version has a definite place in obstetrics is readily admitted; for example in transverse presentations, in prolapse of the cord or an extremity; in selected cases of placenta previa after dilatation has been completed. There is a very definite place for version in those cases of occipitoposterior position where the head is not engaged or where the head has entered the brim of the pelvis. In my opinion this is the procedure of choice in this type of case.

The success in the use of podalic version depends not only upon the skill and experience of the physician, but also on his judgment in selecting the proper cases in which to employ it. We are too prone to use version as a method of delivery after we have failed at other methods. If one is to use version it should be for a definite indication and not as a last resort. The procedure is one of the most difficult in obstetrics, and should not be undertaken as the operation of choice unless the physician fully recognizes its limitations and dangers and is fully equipped by experience and a thorough knowledge of the technique to handle the case skillfully and successfully.

In advocating any method of obstetrical interference one must always bear in mind the maternal and fetal mortality. The fetal mortality is unquestionably increased, even in the best of hands, at least ten per cent. It should be recognized that version in a primipara causes a much higher mortality and the problem is not entirely overcome by simple manual dilatation of the lower passage, but to obstacles higher up.

I have reviewed, in the past few years, 3,630 cases from two hospitals in Nashville in which version was performed 65 times, resulting in a fetal mortality of 35 per cent and a maternal mortality of 4.61 per cent. Is that an answer to whether we should do a routine version merely to cut the second stage of labor short?

DR. W. B. ANDERSON (Nashville): I clearly agree with Dr. Lewis in most of his remarks about a version except the *modus operandi* of a version is not so difficult and complicated and I think is a rather easy thing to do. However, it is a dangerous operation. Every time you put your hand in the uterus you are inviting infection. The higher up you put your hand the more you are inviting infection. When you look at statistics, the fetal mortality is so much greater and damage to the soft parts is so much greater. Then I think we should

look on a version as a solution of an obstetrical problem only, and I do not think the indications are as great and as frequent as some think.

Take, for instance, the fact that there are more versions done for occipitoposterior positions than for any other problem. My experience has been in the majority of these occipitoposterior positions that a bimanual rotation usually can be worked with far less danger than a version. I do not think that all occipitoposterior positions are indications for versions. Occasionally you find one fixed where it cannot be rotated. I have seen that. Then a version is indicated.

Again, prolapsed cord is one of the dangers that is considered an indication for version, and in two or three cases that I have seen I have turned the patient into the knee-chest position and replaced that cord down into the fundus of the uterus, turned the patient back on her back and delivered her normally. I think I see Dr. Glasgow in the audience; he will remember we did that on a patient not a great while ago out at St. Thomas. Prolapsed cord is not always an indication for version.

I do not see that varicosities of the vulva are indications for version. I have never seen any damage done in a normal delivery from varicosities of the vulva, but I believe they would be in more danger in delivery by version. I just wanted to make these remarks to say that the indications for versions are not as frequent as we think.

DR. G. W. STONE (closing): I enjoyed the discussions. I will admit that if one does not know how to do a version he had better not attempt it because it is a difficult operation.

One of the gentlemen spoke about packing the uterus after placenta previa. I think it is very wise. Personally I pack all uteri after placenta following delivery; I take no chances.

One other doctor spoke about primiparas being more difficult than multiparas. I did not say to do a manual dilatation on the cervix of a primipara. If you have a primipara with placenta previa without any dilatation, the best method is a Caesarean section.

In your multiparas with placenta previa, if your cervix is not fully dilated and you have got the proper anesthesia, it is no trouble to do a manual dilatation on the cervix and on the lower birth canal and do a podalic version.

If a podalic version is indicated as a last resort, why not do it before the last resort?

Again let me say that I enjoyed each and every discussion.



## RENAL DWARFISM\*

PHILIP C. ELLIOTT, M.D., Nashville

**R**ENAL dwarfism is a condition of retarded growth and development occurring in children, due primarily to renal insufficiency and frequently of congenital origin. It is often associated with bony changes and, if the affected individual reaches puberty, with infantilism. The subject is here presented simply because it is still a relatively unusual condition. Of necessity our discussion will be the briefest.

The following case history is given to illustrate the more or less typical history and findings in renal dwarfism:

I first saw A. H. at the age of 14 years, January 23, 1933, at the Children's Hospital of East Bay, Oakland, California. His past history was that of normal birth with normal growth and development until he was about four and one-half years of age, when he first began to have pains in his abdomen. Shortly thereafter an exploratory laparotomy revealed chronic appendicitis and a question of mesenteric tuberculosis.

At approximately the same time the patient had measles, subsequent to which he failed to develop and grow normally. He was undersized and tired easily. He had frequent spells of nausea and vomiting and occasional slight dysuria. There was no hematuria, pyuria, or edema ever noticed. He was never jaundiced. He had occasional colds and sore throats, but no acute illnesses except the above measles and chicken pox. T. and A. in 1928. His parents said he was mentally alert and did well in school, being in the eighth grade.

Approximately three weeks before this first examination he became decidedly more weak and developed frequent epistaxis. A bothersome cough began which often initiated vomiting. There was slight nocturia. Poor appetite and disturbed sleep were prominent.

The family history offered nothing of great importance. They were Armenians.

No chronic disease or intoxication in the family could be ascertained nor any condition similar to the patient's.

The relevant physical findings follow: The patient, though 14, was the size of a six or seven-year-old child and very poorly nourished. Actual weight fifty-one and one-half pounds (normal 100 +). He was quite dehydrated and very weak. His skin had a peculiar dirty yellow color. Fundi were quite pale. Teeth were regular, but decidedly carious. Lungs were clear. The heart was moderately enlarged with a systolic apical murmur, not transmitted. Pulse 120. Blood pressure 95/70. The liver could be palpated at the level of the umbilicus—firm and smooth. The spleen was definitely palpable. No secondary sexual characteristics were evident. The feet showed slight pitting edema.

### RELEVANT LABORATORY FINDINGS

#### *Blood:*

H. B.—21.35 per cent (N).

RBC—1,150,000.

WBC—35,600 (95 per cent Polys.).

NPN—120 mgm. per cent.

Creatinine—10 mgm. per cent.

Ca—15 mgm. per cent.

P. (estimated from creatinine, according to Boyd 24)—22 mgm. per cent.

Wassermann—Negative.

#### *Urine:*

Sp. Gravity—1.010.

Albumen—4 plus.

Many WBC and clumps.

A few coarse granular casts.

PSP—First hour 15 cc. Color too slight to read.

*X-ray:* No evidence of rickets.

The family took him home against advice at the end of 48 hours. Within 24 hours the father hurriedly returned the patient, saying he had been unconscious for some time. On examination, the patient's condition was, aside from his coma, about as on his discharge. Having been previously typed he was immediately given 365 cc.

\*Read before the Tennessee State Pediatric Society, Nashville, April 8, 1935.

whole blood (direct), without improvement. The blood was followed by 150 cc. 10 per cent glucose and almost immediately he began to rouse and his consciousness to clear. His blood before the transfusion showed:

NPN—83 mgm. per cent.

CO<sub>2</sub> combining power—13.6 vol. per cent.

Blood sugar—36.82 mgm. per cent.

Creatinine—8.16 mgm. per cent.

Chlorides—360 mgm. per cent.

Despite symptomatic treatment and his recovered consciousness he gradually weakened and expired 12 hours later.

#### CLINICAL DIAGNOSIS

1. Chronic diffuse nephritis (Congenital? Post-measles?), renal dwarfism (and infantilism), uremia.
2. Secondary anemia.
3. Hypoglycemia.

#### AUTOPSY REPORT

The body is that of a young male child appearing much shorter in stature than normal for one of stated age and decidedly underweight. The skin is a "café au lait" color. Post-mortem lividity and rigor mortis are present. Bones are not grossly unusual. Dental caries is present. Thymus small and atrophic. LUNGS: Both lungs are reddened and congested. There is evidence of a recent bronchial pneumonia present in both lungs. A chronic adhesive pleuritis is seen. HEART: The heart is enlarged, both dilated and atrophied with early fibrosis and degeneration. Valve leaflets and endocardium are clear. There is some beginning adhesive pericarditis present with slightly increased amount of free turbid fluid. LIVER: There is a chronic hepatitis with marked enlargement. Cut section shows a fatty liver with normal markings generally preserved. Congestion is present. SPLEEN: There is present a chronic perisplenitis with increased fibrosis of the spleen itself. It is slightly enlarged and appears markedly congested. PANCREAS: Grossly negative. G. I. TRACT: Grossly negative except for a generalized chronic peritonitis. ADRENALS: Of normal size and shape with some evidence of congestion. KIDNEYS (weight 50 gm. each): Both are smaller than normal

and appear very pale in color. The capsules strip easily and leave an irregular, mottled and nodular surface. Cut section shows a thin, narrow cortex with dimness of markings. The medulla is rich in fibrous tissue and is very firm in consistency. URETERS AND BLADDER: Within normal gross limits. THYROID AND PARATHYROIDS: Not examined.

#### MICROSCOPIC REPORT ON KIDNEYS

Sections stained with H. E. showed a third stage chronic glomerulonephritis (chronic interstitial nephritis). "Glomeruli are in varying stages of degeneration, varying from congestion to fibrous tissue replacement; from collagenous to hyaline fusion. Tubules are dilated, markedly distorted and lined by a flattened epithelium. The most marked element is an increased amount of interstitial fibrosis." (Paul Micheal, M.D.)

#### DISCUSSION

No doubt the existence of chronic interstitial nephritis in children has been known for many years, but reports have appeared in the literature apparently only since 1870, when Steiner and Neureutter (1) reported six cases of granular atrophic kidneys in 265 autopsies on patients with nephritis. The fact that nephrosclerosis was accompanied by retardation and stunting of growth was discussed by Barlow (2) in 1874. Lucas (3), in 1883, seems to have been the first to definitely though loosely associate rachitic changes with kidney pathology. In 1911, Fletcher (4) clearly set forth the etiological relationship kidney disease bears to rickets of this type. Since then much fine work has been done by György (5), Parsons (6), Schoenthal and Burpee (7), Hunt (8), Mitchell (9), Smyth (10), and others.

Mitchell in a most detailed report in 1930 included about 200 cases of chronic interstitial nephritis in persons under 20 years of age, of which 78 (39 per cent) showed clinical or roentgenologic evidence of abnormal bone changes.

The pathology in the kidneys is the key-stone to the study of renal dwarfism, though it of itself may not be the primary factor or the final one in determining the completed picture. The most frequent finding



in the kidney is that of nephrosclerosis, more commonly known as chronic interstitial nephritis, or granular contracted kidney.

Several possible factors enter into the etiology of chronic kidney disease in children. Heredity is definitely one of these. There is both a familial and an hereditary predisposition to it. That nephritis may occur while the fetus is in utero or during very early life is shown by autopsies performed on such infants and the discovery of the disease process (12, 13, 14, 15, 16). Acute bacterial infections, especially streptococic, may also cause the condition. Of special interest is the relationship of measles to chronic nephritis. In the cases collected by Mitchell 71 had definite histories of preceding infection. Of these 27 had measles, 14 having had measles alone. As you recall the patient just described dated the onset of his symptoms to near the time he had measles. Then again while bacterial infection itself can produce acute or chronic nephritis it may, on the other hand, simply aggravate an existing weakened or disordered kidney, throwing the organ operating to the full extent of its reserve into insufficiency.

Ellis and Evans (17) in 1933 reporting 20 cases of renal dwarfism, in which 14 of the 17 examined showed varying degrees of dilatation of the genitourinary tract which in some was extreme, felt that in these cases the genitourinary dilatation preceded and was the cause of the kidney pathology. Similarly Smyth says, "The hydronephrotic element found at autopsy is significant because developmental defects of this type are more than casual accompaniments of chronic diffuse nephritis."

The original pathology may also be congenital cystic kidneys, calculi, congenital aplasia or horseshoe kidney. *But whatever the cause, it is the functional insufficiency of the kidneys rather than the type of pathological change which determines the clinical picture.*

Hypertrophy of the heart frequently occurs. Blood pressure may be quite high but typically is not. The cardiac hypertrophy is usually well compensated and the

edema occasionally found is more frequently renal. Arteriosclerosis is present at times. Abnormal deposits of calcium may be found in glands, heart, blood vessels, kidneys, lungs, skin and other places. (10, 18, 19.)

The osseous system may show marked deformity. This characteristically gives the clinical picture of infantile rickets. While it is not identical in all respects most investigators feel it is the same process essentially. Three X-ray types are more or less definitely defined. According to Parsons they are:

A. The atrophic type in which the whole bone presents a fragile, atrophic, osteoporotic appearance.

B. The florid type in which the picture is characteristic of florid rickets.

C. The woolly, stippled, or honeycombed type. (The bones in the skull sometimes show changes in that they are greatly thickened and show extreme stippling, much like the appearance of Paget's disease.) At necropsy this woolliness or stippling is found to be due to irregular calcification and the presence of islets of cartilage deep down in the metaphysis.

Of the endocrine glands which might have a bearing on the condition the pituitary, parathyroids, and adrenals show no uniformity whatever in their histology or pathology.

The onset of symptoms of renal insufficiency may occur at any time from birth on, the average age being about seven years. Stunting of growth is often marked, producing some of the most extreme cases of dwarfism. The mentality varies, in some being definitely subnormal, in others, as in the case presented, certainly of average capacity. Those reaching the age of adolescence all show retarded secondary sexual characteristics, some remaining definitely infantile.

The usual symptoms of chronic kidney disease are present, polydipsia, polyuria, and generally anorexia. Uremia with its headache, vomiting, bleeding, disturbed vision, and convulsions usually conclude the picture. Tetany occurs, but infrequently. Secondary anemia is a quite constant finding. A peculiar pigmentation of the skin

is far from uncommon. It may be a dirty gray, grayish-yellow, bronze, etc. Whether this is due to a suprarenal involvement, part of an Addison's syndrome, is not known. It does not involve the mucous membranes.

All the common signs of rickets may be shown, rosary, pigeon chest, Harrison's groove, enlarged wrists and ankles, bossing of the frontal and parietal bones, and genu valgum. This last is probably the most prominent rachitic sign in most of the patients. The suddenness with which it appears and develops is striking in many cases. Dental caries is a frequent finding but occasionally even in the face of marked decalcification of bone structures, the teeth remain in good condition (10-11).

The urine is characteristic of nephrosclerosis with low fixed specific gravity, albumen in small to moderate amount, occasional WBC, moderate RBC, and casts. The P. S. P. output is greatly diminished. Blood chemistry reveals increased N. P. N. elements. Occasionally very high levels are reached.

An exact explanation of why dwarfism follows renal insufficiency is not possible. Whether it is simply the slowing of metabolism and growth processes by the azotemia, whether the body is "adapting its bulk to the diminished renal reserve," (11) or whether it is a result of endocrine reaction to the altered kidney function is still to be answered. Where the parathyroids are definitely involved, Smyth and Goldman (10) "suggest that Thompson's (20) anti-growth factor of the parathyroids may be of more than academic interest."

The cause of the bony changes is likewise still largely theoretical. The factors of prime importance are the inorganic minerals in the blood, especially the calcium and phosphorus. The role of magnesium must also not be overlooked.

Serum calcium appears, in normal children, in concentrations of ten to twelve mgm. per 100 cc. Inorganic phosphorus normally is 4.5 to 5.5 mgm. per cent. As the phosphorus concentration rises, the calcium tends to fall and vice versa. In ordinary infantile rickets we have a low phosphorus x calcium product. This may be due to

either a low calcium or a low phosphorus, more frequently the latter. In tetany we have a low calcium value. Hyperparathyroidism is "characterized by an increase in the calcium content of the blood, a lowering of the blood phosphorus, an increased elimination of calcium and phosphorus by the kidney, and decalcification of bones" (21).

In chronic interstitial nephritis, whether primary or secondary to urinary obstruction, and with or without dwarfism or rickets, the blood shows a moderate to high azotemia, and a calcium, either absolutely or relatively low, compared to the phosphorus which is high, due to the kidney's inability to excrete endogenous phosphates. Hyperphosphatemia stimulates the parathyroid. Excess parathyroid activity normally reacts on renal tissue to increase urinary phosphate excretion, but with a diminished renal function this stimulation is ineffective and the phosphate continues to accumulate in the blood.

This excess phosphate unable to be eliminated through the kidney is now partly at least, it seems, excreted from the body through the bowels. Here it can unite with the calcium in the food forming insoluble calcium phosphates tending to produce calcium starvation. This negative calcium balance which would cause a low blood calcium is met by withdrawal of calcium from the bones, where it is of least vital importance to the organism, for the body endeavors to maintain the blood calcium above a definite minimum, just as it does blood sugar, or the phosphate.

The acidosis produced by the phosphatemia also tends to decalcify the osseous system or at least prevent normal ossification. Tetany is an infrequent complication, despite the low calcium, because the acidosis favors an increased ionization of the calcium present, thereby keeping the ionized calcium above the level at which tetany appears, even though the total calcium may seem low.

One should say however that this theory that phosphate retention due to renal defect is primarily responsible for bony changes is not acceptable to ALL investigators, for



as Hunter (22) says it "is clearly unsatisfactory."

The calcinosis or extraosseous calcification which at times develops in the face of bone decalcification must be due to the existence of a slightly less acid or more alkaline condition in these tissues, thus favoring the precipitation of the calcium and phosphorus which are circulating in the blood in such increased concentration. It is not due to viosterol therapy for as in the case of Platt and Owen (19) such treatment was not employed.

The prognosis in renal insufficiency of this type is, of course, very poor.

Treatment of the nephritis is largely protective. Any infection, focal or systemic, should be particularly guarded against. The treatment of the dwarfism must be directed toward the causative renal insufficiency. If this is secondary to an anatomical abnormality such as urinary obstruction or to pathology such as calculi, an attempt to remedy such would seem wise. Schoenthal and Burpee used an alkaline ash diet with added calcium citrate. In treatment of the bone changes most writers feel that vitamin D as viosterol is of no value and at times definitely harmful. A few, however (5-18-23), believe that it is of definite though temporary worth if given in sufficient doses. Ultraviolet irradiation is harmful because it increases the inorganic phosphorus in the blood. Parathyroid surgery would be of value if pathology there could be proven. Surgery for the genu valgum is unwise, for it has been shown how poorly these patients tolerate anesthesia.

The complexity of the whole situation is evident when we consider that some children with apparently the same kidney pathology and the same blood chemistry have no stunting of growth or bony changes, others have one or the other, or both; that vitamin D and ultraviolet irradiation are of no value, and probably definitely harmful

in this type of rickets; that latent tetany is at times present with a calcium of 10 mgm. or over; that rickets occurs in the presence of a calcium x phosphorus product over 40; and that bone decalcification may occur side by side with normal dentition or actual calcification in the soft tissues.

#### BIBLIOGRAPHY

1. Steiner, J., and Neureutter, N.: Schmidt's Jahrb., 149: 180, 1871.
2. Barlow, W. H.: Lancet, 2: 151 and 190, 1874.
3. Lucas, R. C.: Lancet, 1: 993, 1883.
4. Fletcher, H. M.: Proc. Roy. Soc. Med., Sec. Study Dis. Child., 4: 95, 1910-1911.
5. György, P.: Jahrb. f. Kinderh., 120: 266, 1928.
6. Parsons, L. G.: Arch. Dis. Childhood, 2: 1 and 198 (Feb.), 1927.
7. Schoenthal, L., and Burpee, C.: Am. J. Dis. Child., 39: 517 (Mar.), 1930.
8. Hunt, F. C.: Am. J. Dis. Child., 34: 234 (Aug.), 1927.
9. Mitchell, A. G.: Am. J. Dis. Child., 40: 101 (July), 345 (Aug.), 1930.
10. Smyth, F. S., and Goldman, L.: Am. J. Dis. Child., 48: 596 (Sept.), 1934.
11. Maddox, K.: M. J. Australia, 1: 487 (April 9), 1932.
12. Henoch, E.: Lectures on Dis. of Children, N. Y., Wm. Wood and Co., 1882, pp. 251, 252.
13. Holt, L. E.: Arch. Pediat., 4: 1, 103 (Jan.), 1889.
14. Jacobi, A.: N. Y. Med. J., 63: 65 (Jan. 18), 1896.
15. Ashby, H.: Rep. Soc. Study Dis. Child., 1: 129, 1901.
16. Greene, C. H.: Chr. Dif. Neph. in Children, Am. J. Dis. Child., 23: 183 (March), 1922.
17. Ellis, A., and Evans, H.: Quart. J. Med., 2: 231 (Apr.), 1933.
18. Karelitz's, S., and Kolomozyeff, H.: Am. J. Dis. Child., 44: 542 (Sept.), 1932.
19. Platt, R., and Owen, T. K.: Lancet, 2: 135 (July 21), 1934.
20. Thompson, J. H.: J. Physiol., 70: XLI (Oct.), 1930.
21. Dresser, R.: Amer. J. Roent., 30: 596 (Nov.), 1933.
22. Hunter: Quart. J. Med., 24: 393 (Apr.), 1931.
23. Duken, J.: Ztschr. f. Kinderh., 46: 137, 1928.
24. Boyd: Am. J. Dis. Child., 32: 34, 1926.

## UROLOGICAL PROBLEMS IN CHILDREN OF INTEREST TO THE GENERAL PRACTITIONER\*

GEORGE R. LIVERMORE, M.D., F.A.C.S., Memphis

IT IS rather strange in this rapidly advancing and progressive age that urological conditions in children have not received the widespread interest to which their importance entitles them. It is surprising, too, that the profession generally seems to know so little of the value of cystoscopy in the urological problems of childhood.

Only recently I had the mother of a 10-year-old child, who had had repeated acute attacks of a chronic pyelonephritis for years, tell me that her family physician had advised her never to have her child cystoscoped, as it was a dangerous procedure that would most probably cause her death. This is a very erroneous idea, for there is practically no danger in a cystoscopy in the hands of the well-trained urologist, and it supplies information and permits treatment that is impossible to obtain by any other method.

There are only four contraindications to cystoscopy in children. First, some congenital deformity or defect that makes the introduction of the cystoscope impossible. Second, a very low p.s.p. output. Third, a high blood nonprotein nitrogen and creatinin. Fourth, one too ill for any procedure. Although a difficult and delicate procedure, very young children can be cystoscoped with the same degree of precision and with far less reaction than in the adult.

I have cystoscoped and catheterized the ureters of a girl baby two days old and a boy six weeks old. Failure to give a child, who has pus or blood in its urine, regardless of its age, the benefit of cystoscopy and a thorough urological examination is something that should never occur, as there are urologists capable of doing it in nearly every community in this country. I therefore take this opportunity to urge you to help stamp out this bugbear of the danger of cystoscopy in children, and to assure your patients that it is not only not dangerous, but is often the only means of making a

diagnosis and thus preventing invalidism or death. In some cases it may not be necessary to perform cystoscopy, for by means of the intravenous injection of an iodide solution pyeloureterograms may be obtained that may enable the urologist to make a diagnosis without the aid of the cystoscope.

It is beyond my comprehension why doctors will continue to rely on urotropin, alkalies, pyridium, and caprokol in their pyelitis cases in children over a period of months and years when they do not know what is causing the pus, nor how much damage it has done. They would not fail to evacuate pus that is repeatedly causing attacks of chills, fever, and sweats, or let it remain in any other portion of the child's body, except its kidneys, therefore, I ask why this discrimination against the kidneys?

It is possibly due to the fact that pus per se in the kidney is rarely fatal in children, that regardless of the chills, fever, and sweats, the child weathers the storm and may continue to appear in good health, and last but by far the chief reason is because we have been taught to believe that children outgrow pyelitis. It is a fact that where the infection is due to some focus such as the tonsil or sinuses, and where the drainage of the kidneys is good, with removal of the focus, the kidney infection promptly clears up. It is in those cases, however, in which it does not clear up, that I urge you not to allow such a child to continue to have pus in its urine or in addition rigors, fever, and sweats without giving it the benefit of a complete urological study.

When the source of infection, tonsils, sinuses, colitis, etc., has been relieved, the pus may not clear up because there is improper drainage, due to oedema of the mucosa, or a stricture, kink or dilatation of the ureter; and improper drainage means stasis, which is the chief cause of kidney infection. The passage of a catheter irons out the oedematous and indurated areas in the ureter (just as a sound in the urethra obliterates soft infiltrations) straightens

\*Read before the Tennessee State Medical Association, Nashville, April 9, 10, 11, 1935.



out a kink, promotes drainage and brings about a cure.

Failure to give such children the benefit of ureteral catheterization and pelvic lavage may result in stricture, dilatations and kinking of the ureter, stone formation, abscess and probably destruction of the kidneys and death.

It is well known that severe pathology may be present in both adults and children when the urine may contain only a rare pus or blood cell. Such a case is that of a boy baby eleven months old who had had repeated attacks of chills, fever, and sweats, but on account of finding only a rare pus and blood cell in its urine, his doctor continued to rely on medicines to effect a cure. When there was no improvement after five months the child was brought to me. On cystoscopy and X-ray a large left hydro-nephrosis, due to a kinked and strictured ureter, was found. I removed the kidney and he made an uneventful recovery.

All varieties of congenital anomalies occur in children and may be neglected till irreparable damage has been done. Valves and folds in the prostatic urethra, bars at the internal meatus, and hypertrophy of the veru montanum may cause obstructions that soon destroy the kidneys or produce such dilatation of the bladder, ureters, and kidney pelves that the child is a constant sufferer and dies in a few months or years. These patients can be relieved with the high frequency current through the cystoscope unless the kidneys have been damaged beyond repair. The milder types of hypo and epispadias may not require treatment, but those in whom the external meatus is small or obstructed by a band should, at least, be given the benefit of a meatotomy to prevent back pressure until such time as the parts have developed to admit of plastic surgery. Undescended testicle is also very frequent. It may be uni or bilateral. The new method recently proposed by Ballenger and Elder of bringing the undescended testicles down by suction with a vacuum pump has been successful in some cases in my hands. Failure necessitates operation. It is best to operate when the child is about four or five years old.

Kidney infections are the most frequent of all urological conditions in children. Caulk states that 2.5 of all cases admitted

to the St. Louis Children's Hospital since 1916 were pyelitis. The chief cause of pyelitis is stasis, although some focus must be present such as tonsils, sinuses, appendix, middle ear, colon, gall bladder, furunculosis, etc.

Any condition that causes obstruction from the external meatus to the kidney may be responsible for stasis. Stenosis of the external meatus is a frequent cause of stasis and I have seen kidneys and ureters that were completely destroyed sacs, which caused the death of the child, that were due to a pinhole meatus. We must, therefore, be on the lookout for such a condition and perform a meatotomy before back pressure has damaged or destroyed the kidneys.

I would, therefore, urge you to examine the urine of children (only a catheterized specimen is of value in girls) and the prepuce should be retracted in boys (there should be no prepuce in boys, for all of them should be circumcised within two weeks after they are born), and if pus is found and it does not clear up promptly after removing all foci of infection and the administration of urotropin to give the child the benefit of a urological examination.

Urinary calculi are far more frequent in infants and children than is generally known. In 1921, Hill and Stevens reported 340 cases of renal calculi in children and Hinman quoting Boskay collected in 1912 1,836 cases of urinary calculi in children under fifteen years of age. Tumors of the kidney are not rare in children.

The cause of urinary calculi is still a mooted question, but infection and stasis play the chief roles, hence the importance of clearing them up as soon as possible. Bed-wetting is a distressing and embarrassing condition that all of you are called upon to treat and doubtless you prescribe atropine which is the remedy advised in many works on therapeutics. It is an error to prescribe for these patients until a careful urological examination has been made. If nothing pathologic is found atropine may then be given along with massage of the bladder neck through the rectum, the passage of sounds and exercising the sphincter of the bladder by stopping and starting the stream. Such measures are often curative. Surgical pituitrin  $\frac{1}{4}$  to  $\frac{1}{2}$  cc. may prove of value. Phimosis and a small external-meatus fre-

quently cause bed-wetting which may be promptly relieved by circumcision and meatotomy.

Stricture of the ureter, as well as stenosis of the ureteral meatus, also occurs in children and is due to infection, especially when allowed to go on for months and treated with alkalies or urotropin under a diagnosis of pyelitis.

Pus in the urine, too, in children is often due to gonorrhoea. I am sure you would be surprised to know the number of cases of gonorrhoea urologists see in the course of a year. Recently, I saw a case in a girl eight years old who had been under the care of a prominent pediatrician in a large city since she was five years of age. He had merely examined a voided specimen and, as it showed numerous pus cells, he had made a diagnosis of pyelitis and prescribed alkalies to be alternated weekly with urotropin. When I examined her I saw that she had a slight purulent discharge from her vagina, made a smear and the laboratory reported gonococci. This case illustrates the fallacy of treating patients without making a thorough examination, and also proves conclusively how ridiculous it is to rely on the findings in a voided specimen in girls.

Congenital defects, double ureters on one or both sides, exstrophy of the bladder, polycystitic and horseshoe kidneys occur in children, and unless we are careful in our examination will be overlooked until the child reaches adult life, and often in such condition that nothing can be done. Children, in fact, are subject to the same pathological urological conditions as the adult with the exception of hypertrophy of the prostate and pyelitis of pregnancy. Obstructions at the bladder neck simulate the symptoms of hypertrophy of the prostate, and as I have recently read in our daily paper of a girl 12 years of age who gave birth to a baby, it seems that we cannot even make an exception of pyelitis of pregnancy.

Therefore in the care of your pyelonephritis cases in children I would suggest that in the rigor and fever stage you give them hexamethylenamine tetramine gr. V every four hours by mouth and gr. XV to XX intravenously twice daily. Calomel gr. II in  $\frac{1}{2}$  grain doses followed by milk of magnesia. The diet should be chiefly liquid,

though cream of wheat, milk toast, gelatin, and ice cream may be given. If the rigors and fever do not subside in a few days stop urotropin and give alkalies and some foreign proteid. After the acute symptoms have subsided search for foci of infection, teeth, tonsils, sinuses, colon, appendix, etc. Remove the focus, and if this does not free the urine of pus send the child to a urologist for a complete examination before irreparable damage has been done.

### CONCLUSIONS

1. Children are subject to practically the same urological conditions as the adult.
2. Marked pathology may be present when the urine shows only a rare pus or blood cell and the child's physical condition is good.
3. Every case of urinary tract infection that does not respond promptly to the treatment outlined above should be given the benefit of urological study.
4. Cystoscopy is not a dangerous procedure in children, unless the p.s.p. is too low or the blood chemistry too high.
5. There is much less reaction following cystoscopy in children than in adults.
6. A closer cooperation between the general practitioner and the urologist will result in the earlier recognition and relief of urinary tract disease, and the prevention of much destructive pathology.

### DISCUSSION

DR. TOM R. BARRY (Knoxville): Dr. Livermore has called your attention to the most common ailments that we find in children, and of these, pyelitis is the most common. I think it is agreed that pyelitis in the acute stages is purely a medical condition. I think there are very few urologists who would suggest instrumentation in the acute stage. It is those cases which persist over a period of weeks or months, and recurrent cases, that warrant urological study. Stasis will be found in a lot of these infections.

As far as drugs are concerned in combating pyelitis, I think we have one which is of value; I think the rest are useless and should not be used. Urotropin is an excellent drug in some cases. Switching from alkali to an acid is also helpful, together with the intake of large quantities of water.

I think stones in children are much rarer than in adults. Why this is so is difficult to say. If infections have anything to do with the etiology of stones we would expect stones to be found much more commonly in children than are really found. Probably a better balanced diet in children is responsible for finding fewer stones.



The treatment of undescended testicle at the present time is quite an interesting speculation. A lot has been written recently on the production of descent of the testicle by administration of the hormone of the pregnant urine or antuitrin-S. Cohen reported four cases, in three of which he produced complete descent in a period of five or six weeks by the administration of antuitrin-S. On the other hand, a large series of boys at school were observed over a period of ten or twelve years. There were twelve cases of undescended testes that were not treated at all. Of these twelve, ten descended completely into the scrotum without treatment. The other two, age 16, have not descended. Some of these cases descended in the twelfth, fourteenth, and even to the sixteenth year. In view of the above facts, I believe we are justified in waiting until the child has reached the age of fourteen or sixteen before operative interference is advocated.

As far as enuresis is concerned, it is a most trying matter both to the physician and to the family. I think a large majority of enuresis is entirely habit. If a child does not wet himself during the day, but habitually does so at night, then the condition is not associated with any pathology, and the correction lies in disciplinary measures.

Many of these cases can be cured by a little rough passage of sounds into the urethra, and a bit of suggestive psychology.

Renal tumors in children are quite common up to the age of six. Practically all of these are malignant.

I would like to emphasize what Dr. Livermore said about circumcising a child in infancy. There is no case of cancer of the penis on record where the child was circumcised in its infancy.

Dr. Livermore has called our attention to a most interesting and neglected field. A closer cooperation between the pediatrician and the urologist would be the means of saving many kidneys.

DR. I. G. DUNCAN (Memphis): Gentlemen, I would like to compliment Dr. Livermore on his most excellent paper. I don't believe I have ever heard a paper that had quite so much meat in it as this one. He covered his subject from A to Z, so to speak, in a masterful way, and I don't think he left out a thing. I wish to compliment him on his paper and to emphasize a few points which he brought out.

First about antuitrin-S bringing down undescended testes, if you have ever tried to bring one down yourself and have found all those adhesions and bands, you will agree with me that antuitrin-S must be very, very powerful in order to bring it down through all those obstructions.

With regard to the pyelitis in children, as he brought out, there are two main factors which play a part. One is focal infection; the other is some form of obstruction which produces stasis. Of course, if you have a rotten sinus, a bad tonsil, or some very active source of infection, removal of the focus of infection is all that is neces-

sary, provided that your obstruction is only very slight; but in most cases removing the focus of infection is not sufficient and these cases should be cystoscoped and the obstructions diagnosed and removed in order to relieve this condition.

As Dr. Livermore said, these children rarely die from the pyelitis per se, but most of them die as a result of a uremic condition which brings on some gastrointestinal disturbance, such as diarrhea, or some lung involvement, as bronchopneumonia, etc. Many of these little patients die without the real cause of death having been ascertained.

In regard to the treatment of these cases by cystoscopic methods, it takes only a few minutes to put catheters up into the ureters, and you can strap them in and leave them there for a number of days and have the nurses irrigate these kidneys through the retention catheters as often as desired. In that way you relieve this infection and go a long way toward curing the patient.

I think that this paper is most timely, and I hope that the men who treat these little children will realize that they are not giving them the full benefit of the advancement of medical science when they don't have their kidney infections treated by the urologist.

DR. GEORGE R. LIVERMORE (closing): I just would like to mention antuitrin-S that Dr. Barry brought up. We tried it out and I can't see that there is much to it. As he reported, many of these testicles come down anyway in growing boys.

With the Ballenger method, Dr. Ballenger told me they had been experimenting for the past two and a half years and they had not failed to bring down any case that would persist in keeping up the treatment for a long time. I have had some success with his method.

With regard to Dr. Barry saying that enuresis is a habit, well, that may be true, but if we find pus in the urine or we find any obstruction, or anything of that sort, of course, then it should be investigated, but if the urine is normal we might call it a habit.

In regard to circumcision, I want to make this very emphatic, because I believe that this is one of the most important things that we doctors should do, to see that everyone becomes circumcised. As Dr. Barry brought out, in the Jewish race, which has circumcision on the eighth day, no case of carcinoma of the penis has ever been found in that race. In Gentiles it is rather frequent. In Mohammedans, who are circumcised when they reach puberty or just before matrimony, as I understand, carcinoma of the penis is very, very rare.

If I have succeeded in making my point that cystoscopy in children is not a dangerous procedure, that you should not allow these children to go on with pus or blood in the urine (even though it may be very rare) over a great length of time, and if you will endeavor to see that these children are given the benefit of a thorough examination, I shall feel that my effort today was not in vain.

# THE JOURNAL

OF THE

## TENNESSEE STATE MEDICAL ASSOCIATION

Devoted to the Interests of the Medical Profession of Tennessee  
Office of Publication, 510 Doctors Bldg., Nashville, Tenn.

Acceptance for mailing at special rate of postage provided for  
in Section 1103, Act of October 3, 1917,  
authorized July 15, 1932.

H. H. SHOULDERS, M.D., Editor and Secretary

SEPTEMBER, 1935

## EDITORIAL

### A NEW ACTIVITY OF THE STATE MEDICAL ASSOCIATION

The education committee of the state association is making plans toward two definite objectives. These objectives are, first, such postgraduate activities as may be necessary within the profession to see to it that each doctor is qualified and equipped to engage in the practice of preventive medicine to the extent of administering prophylactic treatments, such as typhoid vaccine, smallpox vaccine, toxoid, etc. Of course, a vast majority of the doctors are already informed and equipped. Very little work will be required to carry this work to completion. Then it will be that each doctor's office in the state will be a station for preventive, as well as curative, medicine. Second, the public is to be educated through news releases given out by the state association, which will bear the endorsement of the association and not the name of the author. In fact, authors on the various subjects treated will collaborate in the work of editing this material.

An essential part of the plan is a policy on the part of the association to administer these preventive agents to indigent children without charge and to administer these treatments to those who are able to pay on the most reasonable fee basis. This is a most important activity on the part of the association.

The State Board of Health will cooperate in such a movement. The time has come at last when there is to be cooperation between the organized health departments of the

state and the organized profession of medicine. The public will be the beneficiary.

The profession of medicine is engaged in the most constructive activities. It has not engaged in anything destructive, except in the destruction of those things which must be destroyed, just as noxious weeds must be destroyed for the growth of wholesome crops.

### THE MEDICAL PROFESSION AND THE TENNESSEE EMERGENCY RELIEF ADMINISTRATION

An effort has been made by the committee to obtain information from the various counties of the state as to the amount of money doctors have received from the Tennessee Emergency Relief Administration for services rendered persons on relief rolls. A large amount of information has been accumulated. It is not sufficiently complete to date, however, to permit of its publication. Several items of information are very authoritative and very interesting.

In one of the larger counties in middle Tennessee, all the doctors of the county have actually received a total of \$1.00 for services rendered all the clients on relief rolls. In another county, approximately sixty-five per cent of the calls were referred to one doctor, twenty per cent of the calls to another doctor, and fifteen per cent to another. The one to whom sixty-five per cent of the calls were referred had received a total of \$118.50 for all his services.

From another county information comes as follows: "As far as I can ascertain, not a doctor in this county has made a call to any one on relief rolls of the TERA for which a bill has been submitted."

Many doctors have expressed themselves as having no particular interest in the fee schedule per se, but a vital interest in being rid of the supervision of the so-called "case workers." They would far prefer to handle their cases without the interference and supervision of case workers at the most reasonable fees possible.

From many counties information is furnished to the effect that a large percentage of the fees are unpaid. It appears now that the Tennessee Emergency Relief Administration will receive no federal aid after



November first. It will be interesting to note if the salaries of executives and case workers are paid in full before federal funds give out, and the small fees for medical services left unpaid.

---

#### STATE MEDICINE

In an article by a Washington correspondent which recently appeared in the lay press the announcement was made that the administration at Washington is making definite preparation to present for enactment a health insurance measure at the next session of Congress. This information coincides with the opinions of those best informed as to what is going on in Washington.

A committee on social security appointed by the president gave serious consideration to this subject and was preparing to make definite recommendations by March first of this year. Definite recommendations, however, were never made.

The idea was to include a health insurance measure in the social security bill which passed the House and Senate and was approved by the president.

The organized medical profession of America has spoken on this subject. It has spoken with remarkable unanimity. The organized profession of medicine has anticipated these developments and has accumulated more information on this subject than any other group of people.

Careful studies have been made of the operation of health insurance measures in other countries. This study has been approached by the profession in a sympathetic way. Their virtues and their faults have been appraised. They have been appraised by those who are in position to appraise them in the only way they should be appraised, which is in relation to their advantages or disadvantages to the public.

This, therefore, is no longer an abstract question. It might be said that it is now a political question which must be dealt with in a political way. The medical profession must speak not only to the Congress of the United States but to the public.

The medical profession must fight if we hope to preserve the independence of American medicine. It is not too early to begin now.

The following quotations are taken from a letter from Paris, France, which appeared in the *Journal of the American Medical Association*, page 730, the issue of August 31, 1935: "The social insurance law is now five years old, but from all sides come complaints that it has not proved to be the success that was expected. In attempting to balance its budget the government has planned to save four hundred million francs annually through economies in the administration of the law. One of the members of the Chamber of Deputies has asked for an emergency revision of the law because the premiums that insured workers are obliged to pay are a burden hard to bear.

"More than four billion francs is taken out of the pockets of employers and employees every year, and most of it is stowed away in the sinking funds of the various organisms of the law."

The final paragraph in the letter is as follows: "The experiment in the social insurance in France has been far less successful than was hoped or promised. The attitude of the medical profession is becoming more and more bitter in these days of crisis."

When such schemes fail to work in a small country like France with a homogeneous population, how could we hope they would operate successfully in the United States?

The adoption of such a scheme certainly will accomplish the creation of another bureau with enormous powers over workers and doctors, and extensive political possibilities.

## DEATHS

Dr. H. C. Boyd, Waynesboro; University of Louisville, School of Medicine, 1887; aged 70; died August 9.

## LIST OF OFFICERS OF THE TENNESSEE STATE MEDICAL ASSOCIATION

President—Dr. John B. Steele, Chattanooga.  
 Vice President for East Tennessee—Dr. C. R. Thomas, Chattanooga.  
 Vice President for Middle Tennessee—Dr. J. W. Wilkes, Columbia.  
 Vice President for West Tennessee—Dr. N. S. Walker, Dyersburg.  
 Secretary—Editor—Dr. H. H. Shoulders.  
 Assistant Secretary—Editor—Dr. W. M. Hardy.

## TRUSTEES

Chairman and Treasurer—Dr. C. M. Hamilton, Doctors Building, Nashville.  
 Dr. Franklin B. Bogart, Medical Arts Building, Chattanooga.  
 Dr. W. L. Williamson, 915 Madison Avenue, Memphis.  
 Dr. J. O. Manier, Doctors Building, Nashville.  
 Dr. E. R. Zemp, Walnut Street, Knoxville.

## COUNCILORS

First District—Dr. L. E. Dyer, Greeneville.  
 Second District—Dr. S. R. Miller, Knoxville.

Third District—Dr. J. H. Revington, Chattanooga.  
 Fourth District—Dr. J. F. Moore, Algood.  
 Fifth District—Dr. John W. Sutton, Petersburg.  
 Sixth District—Dr. L. W. Edwards, Nashville.  
 Seventh District—Dr. C. D. Walton, Mt. Pleasant.  
 Eighth District—Dr. J. R. Thompson, Jackson.  
 Ninth District—Dr. E. H. Baird, Dyersburg.  
 Tenth District—Dr. W. B. Burns, Memphis.

Speaker of the House of Delegates—Dr. E. R. Zemp, Knoxville.

Delegates to the American Medical Association—

Dr. E. G. Wood, Knoxville; East Tennessee.  
 Dr. H. H. Shoulders, Nashville; Middle Tennessee.  
 Dr. H. B. Everett, Memphis; West Tennessee.

Alternates—

Dr. E. T. Newell, Chattanooga; East Tennessee.  
 Dr. J. O. Manier, Nashville; Middle Tennessee.  
 Dr. E. C. Ellett, Memphis; West Tennessee.

## OFFICERS OF COUNTY MEDICAL SOCIETIES FOR THE YEAR 1935

| COUNTY                                   | PRESIDENT                                                          | VICE PRESIDENT                                                                                             | SECRETARY-TREASURER              |
|------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|----------------------------------|
| Anderson                                 | Thomas Jennings, Clinton                                           | Edward Dickson, Coal Creek                                                                                 | J. S. Hall, Clinton              |
| Bedford                                  | W. T. Sharpe, Farmington                                           | Alfred Farrar, Shelbyville                                                                                 | W. H. Avery, Shelbyville         |
| Blount                                   | C. C. Vinsant, Maryville                                           | L. C. Olin, Maryville                                                                                      | H. A. Calloway, Maryville        |
| Bradley                                  | Vance H. Bell, Cleveland                                           | D. N. Arnold, Cleveland                                                                                    | Wm. A. Garrott, Cleveland        |
| Campbell                                 | A. L. Lawson, Elk Valley                                           | G. M. Rogers, LaFollette                                                                                   | F. I. Slemmons, Jellico          |
| Carroll                                  |                                                                    |                                                                                                            | J. H. Williams, McKenzie         |
| Carter                                   | E. T. Pearson, Elizabethton                                        | J. B. Shoun, Elizabethton                                                                                  | E. L. Caudell, Elizabethton      |
| Chester, Henderson,<br>Decatur           | C. H. Johnston, Lexington                                          |                                                                                                            | L. C. Smith, Henderson           |
| Cocke                                    | J. A. P. Shields, Hartford                                         |                                                                                                            | J. E. Hampton, Newport           |
| Cumberland                               | E. W. Mitchell, Crossville                                         |                                                                                                            | V. L. Lewis, Crossville          |
| Davidson                                 | W. G. Kennon, Nashville                                            | H. S. Shoulders, Nashville                                                                                 | J. P. Gilbert, Nashville         |
| Dickson                                  | L. F. Loggins, Charlotte                                           |                                                                                                            | R. P. Beasley, Dickson           |
| Dyer, Lake, and Crockett                 | E. H. Baird, Dyersburg                                             | P. E. Miller, Tigrett (Dyer)<br>R. C. Newkirk, Tiptonville (Lake)<br>J. O. McKinney, Friendship (Crockett) | C. L. Denton, Dyersburg          |
| Fayette and Hardeman                     | John Morris, Somerville                                            | L. D. McAuley, Oakland                                                                                     | A. Richards, Bolivar             |
| Fentress                                 |                                                                    |                                                                                                            | J. P. Sloan, Jamestown           |
| Franklin                                 | W. F. Smith, Decherd                                               | A. P. Smith, Winchester                                                                                    | John P. Grisard, Winchester      |
| Gibson                                   | P. D. Jones, Milan                                                 | L. H. Montgomery, Trenton                                                                                  | F. L. Roberts, Trenton           |
| Giles                                    | Joe B. Wright, Lynnville                                           | R. E. Warren, Pulaski                                                                                      | T. F. Booth, Pulaski             |
| Greene                                   | L. E. Dyer, Greeneville                                            | M. A. Blanton, Mosheim                                                                                     | C. P. Fox, Jr., Greeneville      |
| Grundy                                   | D. H. Bryan, Monteagle                                             | O. H. Clements, Palmer                                                                                     | T. F. Taylor, Monteagle          |
| Hamblen                                  | P. L. Henderson, Morristown                                        | P. L. Brock, Morristown                                                                                    | J. F. Campbell, Morristown       |
| Hamilton                                 | James L. Bibb, Chattanooga                                         | D. N. Williams, Chattanooga                                                                                | W. J. Sheridan, Chattanooga      |
| Hardin, Lawrence, Lewis,<br>Perry, Wayne | G. N. Springer, Hohenwald                                          |                                                                                                            | C. C. Stockard, Lawrenceburg     |
| Haywood                                  | W. D. Poston, Brownsville                                          | A. H. Sorrelle, Brownsville                                                                                | Roy M. Lanier, Brownsville       |
| Henry                                    | A. F. Paschall, Puryear                                            | Elroy Scruggs, Paris                                                                                       | R. Graham Fish, Paris            |
| Hickman                                  | L. F. Pritchard, Only                                              |                                                                                                            | W. K. Edwards, Centerville       |
| Humphreys                                |                                                                    |                                                                                                            | W. W. Slayden, Waverly           |
| Jackson                                  | J. D. Quarles, Whitleyville                                        | R. C. Gaw, Gainesboro                                                                                      | F. B. Clark, Gainesboro          |
| Knox                                     | Eugene Abercrombie, Knoxville                                      | W. F. Christenberry, Knoxville                                                                             | Jesse C. Hill, Knoxville         |
| Lauderdale                               | J. L. Dunnivant, Ripley                                            | T. E. Miller, Ripley                                                                                       | J. R. Lewis, Ripley              |
| Macon                                    | D. D. Howser, Lafayette                                            |                                                                                                            | J. Y. Freeman, Lafayette         |
| Madison                                  |                                                                    |                                                                                                            | S. M. Herron, Jackson            |
| Maury                                    | E. M. Ragsdale, Columbia                                           | D. B. Andrews, Columbia                                                                                    | C. D. Walton, Mt. Pleasant       |
| McMinn                                   | R. W. Epperson, Athens                                             | S. B. McClary, Sr., Etowah                                                                                 | L. A. Brendle, Etowah            |
| McNairy                                  | John R. Smith, Selmer                                              | G. B. Curry, Selmer                                                                                        | H. C. Sanders, Selmer            |
| Monroe                                   | T. M. Roberts, Sweetwater                                          |                                                                                                            | W. J. Cameron, Sweetwater        |
| Montgomery                               |                                                                    |                                                                                                            | Paul E. Wilson, Clarksville      |
| Obion                                    |                                                                    |                                                                                                            | Frank Kimzey, Union City         |
| Overton                                  |                                                                    |                                                                                                            | A. B. Qualls, Livingston         |
| Polk                                     | H. P. Hyde, Copperhill                                             | W. Y. Gilliam, Copperhill                                                                                  | F. O. Geisler, Isabella          |
| Putnam                                   | Z. L. Shipley, Cookeville                                          | J. Fred Terry, Cookeville                                                                                  | Thurman Shipley, Cookeville      |
| Roane                                    | L. A. Killefer, Harriman                                           | R. F. Register, Rockwood                                                                                   | W. W. Hill, Harriman             |
| Robertson                                | W. Foster Fyke, Springfield                                        |                                                                                                            | W. S. Rude, Ridgeway             |
| Rutherford                               | J. D. Hall, Readyville                                             |                                                                                                            | J. A. Scott, Murfreesboro        |
| Scott                                    |                                                                    |                                                                                                            | D. M. Woodward, Winona           |
| Sevier                                   | O. H. Yarberry, Sevierville                                        |                                                                                                            | C. P. Wilson, Sevierville        |
| Shelby                                   | Res. B. Stanford, Memphis<br>J. F. Mason, Memphis, President-Elect | R. G. Henderson, Memphis                                                                                   | A. F. Cooper, Memphis, Secretary |
| Smith                                    | R. E. Key, Monrovia                                                | Rhea E. Garrett, Dixon Springs                                                                             | J. J. Hobson, Memphis, Treasurer |
| Sullivan and Johnson                     | W. R. Rogers, Bristol, Va.                                         | L. C. Cox, Kingsport (Sullivan)<br>J. C. Hutchenson, Crandall (Johnson)                                    | Thayer S. Wilson, Gordonsville   |
| Sumner                                   | J. J. Gwin, Hartsville                                             | R. N. Buchanan, Hendersonville                                                                             | Arthur Hooks, Bristol, Tenn.     |
| Tipton                                   | A. J. Butler, Covington                                            | J. J. Fleming, Atoka                                                                                       | Homer Reese, Gallatin            |
| Warren                                   |                                                                    |                                                                                                            | H. C. Currie, Covington          |
| Washington                               | J. W. Wallace, Johnson City                                        | E. T. Brading, Johnson City                                                                                | John S. Harris, McMinnville      |
| Weakley                                  | R. W. Brandon, Martin                                              | H. G. Edmonson, Martin                                                                                     | Carroll H. Long, Johnson City    |
| White                                    | S. E. Gaines, Sparta                                               | Vernon Hutton, Ravenscroft                                                                                 | P. W. Wilson, Dresden            |
| Williamson                               | T. C. Rice, Franklin                                               | R. H. Hutchison, Franklin                                                                                  | A. F. Richards, Sparta           |
| Wilson                                   | J. L. Ames, Lebanon                                                | C. C. Young, Alexandria                                                                                    | K. S. Howlett, Sr., Franklin     |
|                                          |                                                                    |                                                                                                            | S. B. McFarland, Lebanon         |



## STANDING COMMITTEES

### COMMITTEE ON SCIENTIFIC WORK

H. H. Shoulders, Chairman, Nashville  
A. F. Cooper, Memphis  
W. J. Sheridan, Chattanooga  
Jesse C. Hill, Knoxville

### COMMITTEE ON PUBLIC POLICY AND LEGISLATION

Battle Malone, Memphis (five years)  
L. W. Edwards, Chairman, Nashville (four years)  
Tom Barry, Knoxville (three years)  
T. R. Ray, Shelbyville (two years)  
Robert Sullivan, Nashville (one year)

### COMMITTEE ON EDUCATION

O. S. Warr, Chairman, Memphis (three years)  
R. B. Wood, Knoxville (three years)  
W. G. Kennon, Nashville (two years)  
J. Marsh Frere, Chattanooga (two years)  
W. O. Baird, Henderson (one year)  
J. M. Lee, Nashville (one year)

### LIAISON COMMITTEE

Hiram A. Laws, Chattanooga (four years)  
Tom Mitchell, Memphis (three years)  
J. L. Raulston, Knoxville (two years)  
W. C. Dixon, Chairman, Nashville (one year)  
W. P. Wood, Knoxville (five years)

### STATE TUBERCULOSIS HOSPITAL COMMISSION

W. S. Rude, Chairman, Ridgeway  
O. N. Bryan, Nashville  
C. M. Oberschmidt, Memphis  
J. L. Hamilton, Chattanooga

### HOSPITAL COMMITTEE

D. R. Pickens, Chairman, Nashville  
E. H. Baird, Dyersburg  
B. L. Jacobs, Chattanooga  
Kyle Copenhaver, Knoxville  
J. A. McIntosh, Memphis  
Lee Gibson, Johnson City

### ADVISORY COMMITTEE TO THE WOMAN'S AUXILIARY

Oliver W. Hill, Knoxville  
Matt Murfree, Murfreesboro  
W. W. Campbell, Memphis

## NEWS NOTES AND COMMENTS

Members of the Anderson County Medical Society and their families were guests Wednesday night, August 21, at the home of Dr. J. M. Cox, Coal Creek, at a picnic supper.

Dr. Hamilton V. Gayden announces his association with Dr. C. S. McMurray for the practice of obstetrics and gynecology, Suite 316, Doctors Building, Nashville.

Dr. Albert Weinstein announces the opening of his offices, 412 Doctors Building, Nashville, for the practice of general medicine.

## MEDICAL SOCIETIES

### *Davidson County:*

The Nashville Academy of Medicine and Davidson County Medical Society resumed its weekly sessions Tuesday, September 3. Dr. C. C. McClure gave "Film Demonstrations of X-ray Cases." Drs. C. M. Hamilton and H. S. Shoulders were listed as discussers.

### *Dyer, Lake, and Crockett Counties:*

The regular monthly meeting of the Dyer, Lake, and Crockett County Medical Society did not convene due to a vote in the July meeting that meetings in August and September be omitted.—C. L. DENTON, *Secretary*.

### *Hamilton County:*

September 5—"Diarrhea," by W. J. Hillas. "Some Surgical Conditions of the Gall Bladder," by Dr. Hiram Laws.

September 12—"Conservative Treatment of Sinus Disease," by Dr. Chester L. Lassiter. "Postoperative Complication," by Dr. Cecil E. Newell.

The following papers will be read during the next few weeks:

September 19 — "Treatment of Chronic Arthritis," by Dr. J. J. Armstrong. "An-

other Year in the Cause and Treatment of Cancer," by Dr. S. S. Marchbanks.

September 26—"Problems in Obstetrics," by Dr. W. G. Bogart. "Prolonged Labor," by Dr. E. F. Buchner.

October 3—"Dementia Praecox," by Dr. J. B. Swafford. "Diagnostic Observations on Ectopic Pregnancy," by Dr. E. E. Reisman.

October 10—"The External Ear," by Dr. S. H. Long. "The Leucocyte Count in Surgical Lesions," by Dr. D. Isbell.

---

*Hardin, Lawrence, Lewis, Perry, and Wayne Counties:*

A meeting was held August 27 in Hohenwald. The following papers were read:

"Mechanism and Management of Normal Labor," by Dr. W. C. Boyce, Flat Woods. Discussion opened by Dr. C. V. Stevenson, Centerville.

"The Clinical Diagnosis and Significance of Irregularities of the Heart," by Dr. William R. Cate, Nashville. Discussion opened by Dr. C. C. Stockard, Lawrenceburg.

"The Value of Vaccine in Poliomyelitis," by Dr. E. W. Goodpasture, Nashville. Discussion opened by Dr. T. J. Stockard, Lawrenceburg.

---

*Putnam County:*

The regular monthly meeting of the Putnam County Medical Society was held August 1, with twelve doctors present, among the number being Drs. O. N. Bryan and W. J. Breeding, of Nashville.

Dr. Breeding gave an excellent and timely address on the "Immunization of Children Against Contagious Diseases."

Dr. W. A. Howard, Cookeville, also made a talk.

---

*Robertson County:*

Dr. and Mrs. W. W. Porter and Dr. and Mrs. J. E. Wilkison were joint hosts August 20 at a dinner for the Robertson County Medical Society on the lawn of the Buford Simpkins home on West Fifth Avenue.

Dr. W. F. Fyke, president, presided over the meeting, which was addressed by Col. W. W. Pepper and Mayor John E. Garner, special guests.

On the scientific program Dr. J. P. Keller, of Nashville, read a paper on "Heart Conditions," which was also discussed by Dr. W. H. Witt and Dr. Herman Spitz, of Nashville. Dr. E. H. Barksdale, of Vanderbilt Hospital, Nashville, discussed a case of kidney diseases. Dr. Lamb, Davidson County Health Board, and Dr. Bush, of Nashville, were also present.

Dr. M. B. Garner, of Edenwold, was back with the society after several months' illness. Dr. William P. Stone, new physician here, was admitted to membership.

Other guests were C. E. Coleman, C. H. Rickman, J. R. Dunn, Jr., and Alfred Purviance, Jr.

Members present were Drs. W. F. Fyke, W. W. Porter, J. E. Wilkison, W. M. Gossett, W. B. Dye, J. S. Hawkins, J. S. Fentress, of Goodlettsville; W. S. Rude, of Ridgetop; Maydell Dowlen, of Joelton; R. D. Moore, E. W. Adair.

The next meeting will be Tuesday, October 15.

---

*Shelby County:*

September 3—Case Reports — "Unusual Gunshot Wound of Face," by Dr. C. K. Lewis. "Solitary Cyst of Kidney," by Dr. Geo. R. Livermore.

Papers—"Nephrolithiasis," by Dr. C. S. Paddock. Discussion opened by Drs. H. K. Turley and J. L. Morgan.

"Streptococcic Septicemia," by Dr. Marian Drane. Discussion opened by Drs. R. F. Bonner and W. C. Colbert.

---

*Washington County:*

September 5—"Diabetes Mellitus," by Dr. R. H. Ruble. Discussion opened by Drs. Lee Gibson and G. C. Horne.

"Carcinoma of the Cervix," by Dr. E. T. West. Discussion opened by Drs. H. M. Cass, Ira Gambill, and J. T. McFaddin.



## ABSTRACTS OF CURRENT LITERATURE

### ANESTHESIA

By HUGH BARR, M.D.  
Medical Arts Building, Nashville

An important change in that phase of medical administration which deals with anesthesia is about to be made in Bellevue Hospital by Dr. S. S. Goldwater, Commissioner of the Department of Hospitals. Commenting upon the plan, Dr. Goldwater says:

"Acting upon a report of the anesthesia service made by a special committee of Bellevue physicians, it is proposed that the present staff of six anesthetists, five of whom are nurse technicians, shall be replaced by a staff composed entirely of graduates in medicine."

Until a few years ago, anesthesia was regarded as a procedure of secondary importance, incidental to surgical operations, and few medical graduates gave it undivided attention, and, more and more, the administration of anesthetics was placed in the hands of nurses who became skilful technicians, but who lacked basic training in the medical sciences.

Recent advances in surgery have demanded increasing attention to anesthetic technics. For instance, the use of ether and other gases by inhalation has been supplemented by procedures in which anesthetics are introduced into the body through the spinal canal, the veins, and other areas. Nurse technicians, trained in inhalation methods only, have not participated in the conduct of anesthesia by these other routes. Furthermore, they have had no responsibility in the preliminary or postoperative care of patients. Again, the simple inhalation methods of earlier years have been elaborated to meet the requirements for equalized pressure in operation on the thorax, which now can be done as readily as abdominal explorations heretofore. Today the surgeon who is about to undertake a hazardous operation prefers, as a member of the operating team, an anesthetist with training in medical sciences as well as with clinical experience.

Progressive medical centers in various parts of the United States have organized departments administered by physicians who offer scientific training in this field. Many of the leading private hospitals and clinics are employing full-time medical anesthetists to conduct their work.\*

\*Substantial savings have resulted where skilled medical anesthetists have been employed. The employment of this type of anesthetist makes it possible to use methods of administration which cannot be safely entrusted to nurse technicians and which are far more economical in use of ether and nitrous oxide than the methods ordinarily employed. One western university hospital has reported savings amounting to more than sixty per cent as the result of the exclusive employment of skilled medical anesthetists.

"The plan for Bellevue Hospital will provide an anesthesia service directed by a visiting anesthetist prominent in this field and connected with the teaching staff of New York University Medical School. Under him will serve a group of medical assistants, adequate in number to meet the requirements of a modern hospital service in this special line of work. This plan will include not only the direct administration of the anesthetics for the vast number of operations performed at this hospital, but certain preoperative determinations as well as postmedical care incidental to the safe supervision of the patients.

"Another feature of the new service will be the training of interns and other young medical graduates in the modern and complex methods of administering anesthetics. Thus an opportunity will be provided to train specialists for such purposes.

"If the plan works out successfully at Bellevue, very probably it will be extended to other hospitals in the department."

**Individualized Anesthesia.** Reuben Maurits. *The Journal of the Michigan State Medical Society*, August, 1935.

The author advises a close study of the patient to determine the anesthetic agent best suited for that particular individual. He takes in consideration age, pathology, and general condition of the prospective operative risk. He discusses the advantages of the various anesthetic agents and their special indications. Agents that may damage the vital organs are to be avoided when these organs are seriously affected.

No one anesthetic agent can be used routinely, and a choice must be made of ether, gas-oxygen, spinal, avertin, or local infiltration.

The behavior of the heart of a thyroid patient under an anesthetic is an important factor in determining the operability. If the heart rate increases to a certain level and remains at that point or continues to increase after surgical anesthesia is reached, the operation should be postponed.

Hypertension is a compensatory provision and should be maintained as nearly as possible during surgery. The safety of a diabetic depends upon the glycogen content and maintenance in the liver, and proper postoperative treatment.

### DERMATOLOGY

By E. E. BROWN, M.D.  
Doctors Building, Nashville

**Ointment for Preventing Sunburn.** Herman Sharlit, M.D., New York, N. Y. *Archives of Dermatology and Syphilology*, August, 1935.

Phenyl salicylate is used in ten per cent strength. The cream is made by dissolving the drug in a minimum amount of liquid petrolatum, and this solution is thoroughly dispersed in a cold cream

base. Such a cream used on the surface of the skin in a thin layer by the usual manner of applying a cosmetic is sufficient to effect the desired result.

**Black Tongue.** Fred Wise, M.D., New York, N. Y. Archives of Dermatology and Syphilology, August, 1935.

He cured three patients with black, hairy tongue by the application of a fifty per cent solution of trichloroacetic acid. In one case a single application sufficed; in the other two cases three applications at fortnightly intervals resulted in cure. The application gives rise to only slight discomfort, lasting five or ten minutes. In using the remedy, one should first wipe the affected area dry and then apply the solution by means of a cotton swab until the surface turns grayish white. His three cases occurred in men.

### OPHTHALMOLOGY

By ROBERT J. WARNER, M.D.  
Doctors Building, Nashville

**Traumatic Myopia.** M. Bolotte. Archives of Ophthalmology, August, 1935.

Bolotte observed the development of a myopia of 1.25 diopters following a contusion. The myopia lasted a month. Under the influence of atropine a hyperopia of 1 diopter was found. Traumatic myopia usually follows injuries of moderate intensity and becomes manifest after the edema and ecchymoses have cleared. No organic lesions are discoverable in the eye. The myopia is transitory and variable in duration. It is seldom as much as 5 diopters. It may be due to subluxation of the lens, and then is permanent. The most common explanation is that it is due to spasm of the muscles of accommodation. Bolotte does not feel that this explanation is completely satisfactory. He invokes the theory of accommodation suggested by Hudelo. This theory divides the ciliary muscle into two parts: (1) the radial fibers which have to do with accommodation for distance and (2) the circular fibers which have to do with accommodation for nearness. This mechanism is briefly reviewed. He contends that it is more reasonable to suppose that a contusion will result in paralysis rather than in spasm. To explain the cases of mild traumatic myopia he suggests that there may be tears or hemorrhages in the radial part of the muscle, which is more exposed to injury, and that the myopia is due to the resulting unbalanced action of the ciliary muscle. The disappearance of the myopia under atropine he explains by the paralysis of the radial and circular fibers so that a strong muscle no longer acts against a weak.

### PEDIATRICS

By JOHN M. LEE, M.D.  
Doctors Building, Nashville

**Treatment, Modification, and Prevention of Measles by Use of Immune Globulin (Human).** Irving M. Levitas, M.D. Jour. A. M. A., August 17, 1935.

The preparation used in this study was Lederle's Immune Globulin (Human), which is a saline extract of placentas from healthy white women with negative Wassermann and Kahn tests. From one to two cc. was given intramuscularly in the buttocks of twenty-eight children with measles. In twenty-five of these children who received the injection at about the time of the appearance of the rash, the cough was markedly ameliorated and toxicity possibly favorably modified. In three who received the treatment on the first day of the prodromal symptoms, no benefit was noted. An elevation of fever was noted a few hours after the injection, and for twenty-four hours there were soreness and tenderness at the site of treatment.

Since Immune Globulin confers a passive immunity to measles lasting a few weeks only, in private practice it is preferable to try to modify the disease so the child may have a mild attack and gain thereby permanent protection. With this objective in mind, fifteen patients were given one to two cc. from one to two days after exposure to measles. In thirteen cases the disease was successfully ameliorated, while in two who had only slight exposure the disease did not develop. In three cases overwhelmingly exposed, two cc. of the extract given five days after exposure had no effect. The modified cases showed slightly longer incubation period, slight if any prodromal symptoms, less intense rash, fever averaged two days instead of the usual four to seven days, less coryzal symptoms and cough, and practically no toxicity. There were no allergic signs noted. From the injections there was an average maximum rise of temperature to 103 F., which was gone next morning, and some soreness at the site of injection that disappeared in twenty-four hours.

In a hospital ward containing twelve patients, a child developed measles who had been in the ward two days. The remainder of the inmates were given three cc. of the extract, and no other cases of measles developed. For obvious reasons it is desirable to prevent measles in an institution rather than to modify the disease. It is suggested that the closer the contact, and the longer the exposure, the larger the dosage of the extract required, hence for prevention three to four cc. would ordinarily be required.



## SURGERY—GENERAL AND ABDOMINAL

By BATTLE MALONE, II, M.D.  
1400 Monroe Avenue, Memphis

A Study of Disruptions of Abdominal Wounds. Arthur H. Milbert, M.D., New York, N. Y. *Archives of Surgery*, Vol. 31, July, 1935.

This paper is based on a study of 1,560 consecutive laparotomies. Etiologic factors are:

Age—Occurs usually in fourth, fifth, and sixth decades of life.

Sex—It is more frequent in males.

Primary Illness—Cases operated for malignancies showed the highest incidence of disruption, 6.35 per cent as compared with the incidence in all cases of 1.28 per cent.

Postoperative Condition — Both emaciation and obesity have a physiologic relationship to dehiscence.

Postoperative Course—This is stormy in nearly all cases of disruption. Restlessness, vomiting, distention, hiccup, and pulmonary complications are all contributing factors.

Operative Technic—The location of the incision is an important factor in the incidence of disruption. None of the incisions in the right lower quadrant disrupted; in the right upper quadrant the incidence was 3.3 per cent, and in the hypogastric region, 0.6 per cent. The usual closure of a laparotomy wound is effective for the peritoneum with No. 1 and 2 plain catgut in a continuous suture. Some surgeons unite the muscles. Fascia is apposed with No. 1 and 2 chromic gut, in a continuous suture, and the skin is closed with black silk. Some surgeons use tension sutures. In cachectic persons Erdmann uses chromic gut throughout, or braided silk through-and-through sutures, to avoid the too rapid absorption of the suture material. In two-thirds of the cases of disruption tension sutures were used.

In this series of disruptions thirteen of the wounds were clinically clean; three were exposed to biliary drainage; and four were grossly infected.

The rough handling of tissues, pulling sutures, and tying knots too tightly, thus strangulating tissue, are considered contributing factors.

The anesthetic is considered by Colp an unimportant part in disruptions, but in a series of 1,560 cases, ten per cent were done under spinal without a single disruption. There was a mortality of fifty-five per cent in the twenty cases of disruption, some of which would have terminated fatally regardless of whether there had been a disruption of the wound.

The author reports an "epidemic" of disruptions, which he attributes to defective catgut.

In making an incision, a certain amount of tissue is destroyed together with blood vessels and nerve filaments. When the wound edges are brought into apposition, a process of fibroblastic proliferation begins to restore continuity. During the first four or five days, the strength of the wound depends on the strength of the sutures and the nature of the tissues. There is a cellular reaction around the catgut, the suture becomes swollen, the fibers separate, and eventually the suture is absorbed. With chromic gut there is less swelling and less rapid absorption. Hemorrhage, necrosis, and infection hasten the process of absorption.

In studying intra-abdominal pressure the author states that three factors—gravity, variations in the omental and mesenteric deposits of fat, and variations in the size of the viscera—control this. When there is a loss of the intra-abdominal fat, there is a compensatory dilation of the hollow viscera. There is an interoabdominal reflex which relaxes the abdominal muscles after a large meal to compensate for the increase in intraluminary pressure. This safety valve effect is upset postoperatively, and the abdominal wall is slinted due to the trauma of operation, and when gaseous and liquid visceral contents are not expelled there is an increase in the intra-abdominal pressure.

*The problem of suture material.*—There is no standard test for catgut. Colp reports good results in median epigastric incisions from the use of braided silk through-and-through sutures. Some surgeons use no absorbable material at all, whereas Baldwin reports 16,465 laparotomies without dehiscence, using No. 2 chromic gut throughout. Freeman attributes disruptions to inadequate closure of the peritoneum.

The author believes the basic etiologic factor in disruptions lies in too frequent failure of suture material, usually catgut, to hold beyond the point of safety in the healing of the wound.

Preoperatively, dehydration, malnutrition, anemia, obesity, and the diabetic state should be effectively combatted.

Sutures must not be pulled too tightly. Dry and brittle catgut should not be used. Absorbable material should be small size and proved quality, and preferably chromicized. A binder should be used postoperatively. Everything possible should be done to combat restlessness, vomiting, coughing, hiccup, and distention. The use of the Levine tube is important in relieving intraluminary pressure. Nonabsorbable tension sutures should not be removed before the twelfth or fourteenth day.

# THE JOURNAL

OF THE

## TENNESSEE STATE MEDICAL ASSOCIATION

DEVOTED TO THE INTERESTS OF THE MEDICAL PROFESSION OF TENNESSEE

ISSUED MONTHLY, Under Direction of the Trustees

H. H. SHOULDERS, M.D., Secretary and Editor

W. M. HARDY, M.D., Asst. Secretary-Editor

OFFICE OF PUBLICATION, 510 DOCTORS BUILDING, NASHVILLE, TENNESSEE

Volume XXVIII

OCTOBER, 1935

No. 10

### CLINICAL APPLICATION OF SOME RECENT STUDIES ON GASTRIC SECRETION\*

LAY MARTIN, M.D., Baltimore

**B**EFORE entering into the discussion, I wish to thank you for your indulgence in permitting me to come down here and talk to you. The subject that I have to present is somewhat complicated, but I shall try to make it as interesting to you as I can.

I wish to correlate certain of the more recent physiochemical findings in the gastric juice with certain clinical diseases. In the study of pathological states, one naturally places a certain importance on the data obtained by gastric analysis. Such conditions as gastritis, gastric carcinoma, peptic ulcer, cholecystitis, pylorospasm reflected from various causes, pernicious anemia, hypochromia anemia, sprue, pellagra, and others less commonly met are ones in which the gastric juice has been or is being carefully studied. Some students include gastric hyperacidity and gastric achlorhydria as a diagnosis per se and place considerable importance on the treatment of these findings, even though they are unassociated with another cause which might explain their presence. I hope to be able to persuade you that the former condition is, in the first place, a misnomer and that it should be called hypersecretion; and, secondly, that it is not a clinical pathological entity. Various writers hold that it is one of the main factors in the production of peptic ulcer. This view seems untenable

to me, and I feel that considerations of the data to be presented below will lead you to the same conclusion.

Achlorhydria, in gastric carcinoma, is a common finding; there are, however, numerous instances in which the disease is associated with the secretion of HCl. Peptic ulcer is a disease in which one expects to find a hypersecretion of gastric juice and high values for its titratable acidity. There is, however, no assurance that this is always so and cases are seen in which normal amounts of juice with normal titratable acidity are found. In cholecystitis, it is impossible to foretell the character of the gastric juice. In the acute cases, one is perhaps more apt to find a high titratable acidity, and in the chronically diseased ones a low titratable acidity is more frequently encountered. However, such is the variation that the finding is of no importance as a diagnostic criterion. There are numerous patients with pylorospasm reflected from such variegated pathological states as a chronically diseased appendix, disease of the uterus or adnexia, hemorrhoids, diverticulae, mucous colitis, inguinal and epigastric hernias, and others. In these conditions, the pylorospasm is generally associated with hypersecretion and the patients suffer from heart burn, belching, distension, regurgitation, and the usual minutia collected under the conglomerate term "indigestion." In fact, some of these diseases may give rise to epigastric symptoms which

\*Read before the Tennessee State Medical Association, Nashville, April 9, 10, 11, 1935.



strongly suggest peptic ulcer. It takes care to establish the correct diagnosis.

The second condition, achlorhydria, has, for a number of years, been known to be compatible with good health. It has, by the careful investigations of Bloomfield and his collaborators, been shown to exist among apparently normal individuals in proportions related to the age groups. The older the group, the greater the percentage of achlorhydria.

Before presenting some of the physiochemical data, I should like to refresh your memories on the relationship of some of the findings of gastric analysis to the diseases enumerated above. Gastritis is a term which has been looked upon with disfavor for some time, as it has been used as a catchall diagnosis to cover many poorly understood symptom complexes. In recent years, the gastroscope has shown it to be not uncommon and pathologists regard it as a possible precursor of carcinoma or peptic ulcer or both. Studies of tissue sections show it to be commonly associated with both types of disease. In the initial stages of this disease, the mucosa secretes an increased amount of gastric juice, but, as the lesion spreads, there is a greater and greater decrease of HCl and there remains only a copious outpouring of mucus.

That circulatory malfunctions, associated with diseases of the myocardium or arteries, cause secondary changes in gastric secretion and digestive disturbance is a common knowledge. Hepatic changes, whether inflammatory or cirrhotic (to make a difference in degree, not necessarily in kind), are also the basis for disturbed gastric states. In these instances there is usually a deficient secretion of the gastric digestive juice and a low titratable acidity; again, however, statistical data reveal the fact that there are many exceptions and that there are marked individual variations.

There is a large group of patients who complain of gastric discomforts of varying degree. On recounting their ailments they pour forth a symptom complex which is illusive and confounding in its instability and which has no relation to any known syndromes of organic disease. There is,

however, usually one factor which all have in common; after the history has been recounted at length, a discreet question will generally bring the response that any environment or emotional change, which will produce anxiety or nervousness, will enhance the quantity and quality of the symptoms. It is this group, in whom careful study reveals no organic pathological state accountable for their symptoms, that the physician has so frequently erred. He has treated the gastric hypersecretion, so generally found, as an entity. In so doing, he has added fuel to the flames and has made it harder for the next man to explain to the patient that his hypersecretion is based on a neurocirculatory imbalance, and that it is his psychoneurotic state and not his hypersecretion which needs treatment.

In recent years, there has been a revival of interest in the gastric secretions of the anemias, of sprue, and of pellagra. It has been feasible to divide the anemias into two main groups, the macrocytic and the microcytic. Into the former fall pernicious anemia, sprue, and pellagra. The first disease is, with notably rare exceptions, associated with an achlorhydria; in fact, an achylia, i. e., an absence of HCl and pepsin.

The latter two are also associated with an achlorhydria, but the instances in which free HCl is found are more numerous. In pernicious anemia, there is an almost complete absence of the intrinsic factor. In fact, its presence has been demonstrated by only one group of investigators. They collected and pooled the gastric juice, obtained from a number of pernicious anemia patients, until a large amount had been accumulated. By incubating this supply with beef muscle and feeding it to patients with pernicious anemia, they were able to produce a reticulocytic rise in the blood. Consequently they believe they have shown that the intrinsic factor is present in the gastric juice of pernicious anemia patients, but that the amount is markedly decreased. In association with the results of the investigations carried out on sprue and pellagra, their findings seem quite rational.

In these two diseases there is, presumably, at times, a decrease in the intrinsic

factor. This apparently occurs only in the latter stages of the disease and may be due to a protracted previous lack of the extrinsic factor in the ingested food. There is one striking difference between the gastric juices in primary anemias, on the one hand, and sprue and pellagra on the other. In the former, no case has been observed in which beneficial treatment has carried a return of HCl secretion. The phenomenon has been observed in well-treated and improved cases of the latter. With the return of HCl, it has been possible to demonstrate the intrinsic factor in normal amounts.

For the sake of clarity, I should like to define the terms intrinsic factor and extrinsic factor. They are used in the sense of Castle, who first advanced this following theory. The synthesis of the antianemic principle, found in the liver, is due to the interaction of two, as yet, insufficiently understood and chemically unknown substances. One is known to be present in the normal human and porcine gastric juice, i. e., the intrinsic factor. The other is known to be present in animal muscle, yeast extract, and various other substances, and is called the extrinsic factor. The union of these two bodies produces a material which is either one of the precursors of the antianemic principle or that principle itself.

#### PHYSIOCHEMICAL STUDIES

In the normal stomach, which is in the fasting state, one generally finds a small amount of gastric juice which may or may not contain HCl; if not, it contains a not inconsiderable amount of bicarbonate. There are also other substances: mucus, neutral salts, phosphates, enzymes, proteins, and various nonprotein nitrogen constituents such as urea, ammonia, amino acids, and uric acid. These are also the intrinsic factor of Castle and others, as yet, chemically undefined materials.

Figure I may be consulted to bring to you more clearly the different electrolytes which are present in the gastric juice and their correlation to the same electrolytes in the serum.

For the elucidation of those not interested in chemistry, I would like to define what I mean by an electrolyte. An electrolytic so-

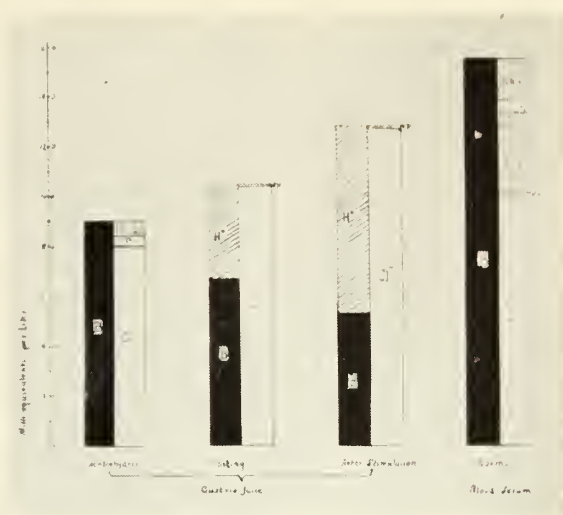


Fig. I

lution is one in which there is present one or more factors such as a salt, an acid or an alkali which dissociates into positively and negatively charged particles. Their interchange is responsible for the acid-base balance of tissues, blood, and other fluids.

The amount of the various anions and cations (the anions being the negatively charged particles or ions, and the cations the positively charged particles or ions) is measured in milliequivalents and not in milligrams. In this manner, it is possible to designate the number of 1/1000 parts of a normal solution of the material in question. By the use of milligrams, it is not possible to arrive at an acid-base balance.

The last column on the right is a graphic representation of the electrolytic concentration in normal blood serum. Herein it is noted that the base side is made up entirely of what are called the inorganic bases, sodium, potassium, magnesium, and calcium. They are in equilibrium with proteins, organic acids, bicarbonate, phosphate, and chloride. If a line is drawn immediately across from the chloride level of the serum, it is shown that in the fasting normal gastric juice there is more chloride present than in the blood. This brings up the question of secretion or transudation. It is also worthy of note that the total milliequivalents are generally less in the gastric juice than in the blood.

When the normal mucosa is properly stimulated, there follows a copious outpour-



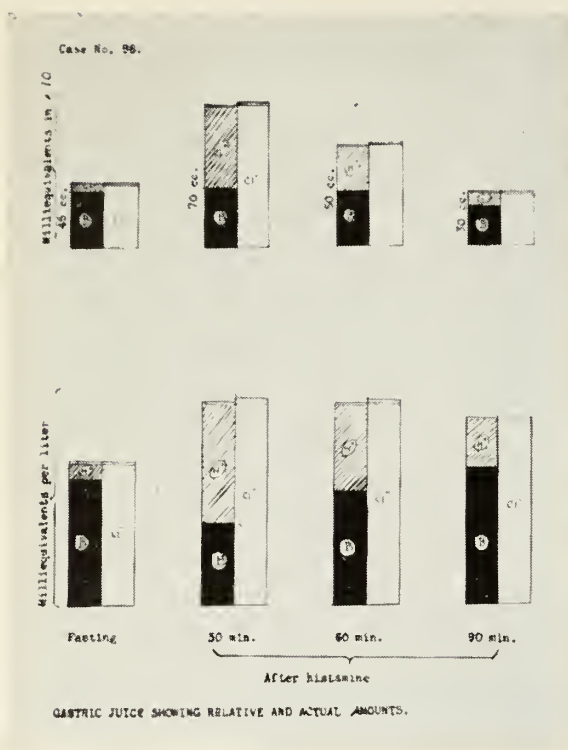


Fig. II

ing of a clearer, more acid and less mucoid liquid. Other marked changes occur, as you may see in Figure II, which graphically represents the interrelation of certain materials at various periods of gastric secretion. The first column represents the findings in the fasting juice. The next three columns represent the findings obtained 30, 60, and 90 minutes after histamine stimulation.

The most striking change is the outpouring of HCl. This usually reaches its peak at the half-hour and then gradually returns to its prestimulation level. During this time not only is the amount of HCl increased, but also to a certain extent its secretion concentration. The latter change is, however, not marked. The return of the titratable acidity of the gastric juice to its prestimulation level is there shown to occur, not from the influx of alkaline duodenal juice, but due to the wearing off of the effects of stimulation. It is certainly true that the influx of alkaline duodenal fluid into the stomach will reduce its acidity, but that the gastric acidity will remain at the same level unless so neutralized, according

to Boldereff and others of the same belief, is not true.

The weight of this argument is strengthened by a study of the changes of the neutral salts during the period of secretion. From Figures I and II it can be seen that, with the increased hydrochloric acid, there is also an increase in the concentration of total chlorides. There is, however, a decrease in concentration of the neutral salts, represented by B on the figure, which shows that the increase in chlorides represents only an increased secretion of HCl and not of neutral salts. It would look as though base were decreasing, and in concentration it is decreasing, but if we measure it per unit volume of time, we find that the same amount of base is secreted during each half-hour interval, but that the greater quantity of acid secreted dilutes it.

Histamine, therefore, increases the volume of secretion of HCl, but the volume of secretion of salts per unit of time varies but little.

The rise and fall of the titratable acidity of the juice is due to the ratio between the amount of acid and salts secreted. When a large volume of acid is secreted, the titratable acidity is high, due to small dilution in salts. When a small volume of acid is secreted its dilution in the salt is greater and the titratable acidity is less.

Various investigators have insisted that the chlorides are secreted at a constant level. We have not found this to be the case. We have, however, found relatively slight changes in the phosphates, the proteins and ammonia.

The changes occurring in the electrolyte patterns in the achlorhydrias are more simple than in the group described above. Following histamine stimulation, there is often an increased volume of secretion. There is, also, an unpredictable change in the secretion concentration of salts. It is noteworthy that ammonia and the phosphates are found in greater concentration than in the normal cases. This is probably due to the fact that they are not diluted with hydrochloric acid. Bicarbonate is found in about equal amounts during the several periods of the experiment.

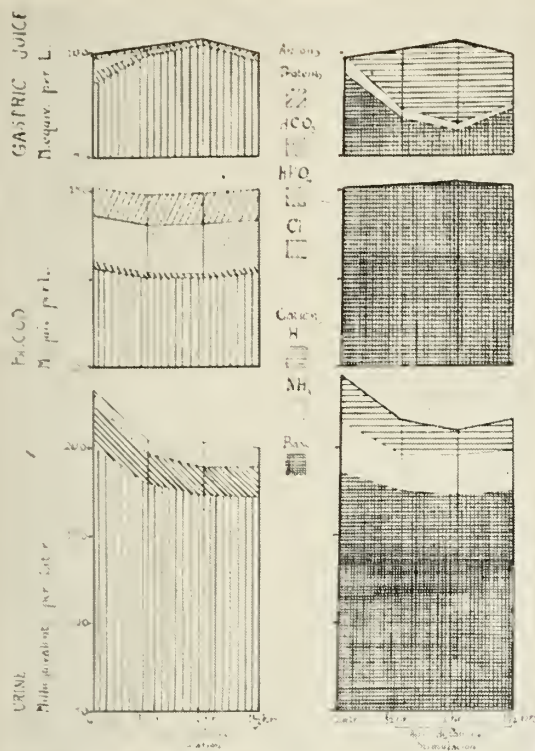


Fig. III

I have charted, in Figure III, a composite diagram of a normal case of gastric secretion. It shows, in the top row, the electrolytes or the elements found in gastric juice during the various phases of secretion. In the second line, it shows those same elements in the blood stream and in the bottom, in the urine, during the same phases of gastric secretion. Gastric juice, blood, and urine were obtained as controls, and then at thirty, sixty, and ninety minutes after injection of histamine. All specimens were analyzed by identical procedures.

Let us consider the complete electrolytic change in a person pouring out gastric juice, the elements of which he is taking from his blood stream. It would seem logical to believe that these should be changes in the electrolytic balance of the serum. This supposition is borne out as follows: There is a slight increase in base because less base is lost to the gastric juice. There is a drop in the amount of serum chlorides. There is a drop in the serum phosphates which appear small on this chart, but when one pictures the ratio of serum chloride to

phosphate, the fall in the latter is seen to be proportional to the former. As chlorides are lost, the excess, or freed, base immediately combines with  $\text{CO}_2$  and one finds an increase in  $\text{CO}_2$  capacity. The proteins vary but little, however they vary inversely as the serum chlorides.

We may now inquire into any urinary variation, all the while remembering that the experimental subject has lost from his serum chloride and phosphorus and has added to it serum base and bicarbonates. In other words, he is in a condition of relative alkalosis, very much the same as a person who has vomited a great deal, similar to the person who has taken large doses of sodium bicarbonate. Therefore, his urine must get rid of an excess amount of base, and must put out relatively less chlorides and less phosphates than it did before. That would seem a reasonable theory and that is exactly what happens.

Among the achlorhydrias, the changes of the electrolyte pattern show definitely smaller changes and the urine is more apt to become acid, as the body has not lost chlorides in excess of base in the gastric juice. It was thought that it would be possible to diagnose an achlorhydria if the urine became acid during digestion. That, unfortunately, does not hold true, for, in a certain number of normal cases, the urine became more acid.

I have mentioned, among the products found in the gastric juices, certain non-protein nitrogen substances such as ammonia, uric acid, urea. These substances are found in quantities somewhat different from those in the blood, and the presence of relatively large amounts of ammonia is indeed interesting. In the blood, ammonia is present in about 0.1 to 0.2 milligrams per 100 cc. of blood. In the gastric juice, we find it about fifty times concentrated. On the other hand, we find that urea, an easily diffusible substance, is present in the gastric juice in much less concentration than in the blood. This unusual situation could be explained on the basis that an enzyme urea is present in the gastric mucosa and gastric juice. Experiments were designed to demonstrate the tenability of



this theory. It was found to be true. There must be some reason for such a reaction and this is a problem which is being investigated at the present time and the answer of which we do not know.

There are also two proteinlike materials present that have been studied to some degree; one is attached to a sugar molecule, of which we have the osazones, and the other is called gastroglobulin, which has been crystallized and analyzed.

I present this to you for the reason that it is important in the explanation of what we mean by free hydrochloric acid and combined acidity. When specimens are titrated, a common result, after the Ewald test meal, is free hydrochloric acid 40, total acidity 65, which means that there is a combined acidity of 25. This combined acidity has been taken to represent the amount of hydrochloric acid combined with protein. If alcohol is used as the test meal, the results will average free hydrochloric acid 50, total acidity 60, combined acidity about 10. This same result is true in the use of histamine.

In the use of the Ewald type of meal, many unknown factors are exerting an influence on titration. Therefore, let us only consider the "combined acidity" obtained after alcohol or histamine test meals.

The proteins in the gastric juice, which were mentioned above, are present to the extent of about 150 milligrams per 100 cc. of gastric juice.

Proteins are amphoteric; they can combine with either acids or bases in relation to their isoelectric point. To know with which they are combined, one has to know their so-called isoelectric point; that is, that point in the acid-base range at which they do not combine with either. On the acid side of this point, their positively charged radicals are available for chemical union; on the alkaline side the negatively charged. It has been mentioned that the isoelectric point of gastric juice proteins is about pH 3.5. It is to this point that the usual titrations for free HCl are carried. Therefore, while titrating to this end point of canary yellow, not only has the free HCl been determined, but also the amount of

acid which is combined with the proteins of the gastric juice. In other words, the free hydrochloric acid figures give not only the amount of free hydrochloric acid, but also the total combined acidity. The alkali that is added after that point combines as base with the protein and does not, in any way, measure combined acidity. It really estimates the alkaline combining strength of the gastric juice. In cases of achlorhydria, it has been called HCl deficit; another misnomer. Therefore, it is misleading to use such an expression as "combined acidity" while using the present method of titration, and what we had much better do, in using the usual figures, is to say that we find that the combined and free hydrochloric acid is, say, 48, which corresponds to the old figure that was simply given for free hydrochloric acid. This would eliminate the so-called "combined acidity" until we do know what it means. Up to now we have no idea. It may have some connection with various conditions, particularly those found in achlorhydria, but until that time comes it would seem more reasonable to use the one determination.

It has been shown above that, following successful gastric stimulation, there is an immediate rise and then a fall in the amount of HCl secreted. With this rise and fall of volume there is a corresponding rise and fall of titratable acidity until it approaches the prestimulation level. This fall takes place without the influx of duodenal contents.

From this observation, it is possible to conjecture what happens during the period of ordinary digestion. There have been a great many investigations made on this point by a number of competent observers. They seem agreed on the point that as digestion proceeds, the titratable acidity of the mixed food meal rises until it is arrested in its course by a reflux of alkaline duodenal contents. They furthermore agree that unless this regurgitation does occur, a marked hyperacidity will occur and the patient may have disagreeable symptoms. They say that in pylorospasm this is the common finding and that due to the unrelaxed pylorus or one obstructed by cicatricial

tissue, the alkaline duodenal contents is prohibited from entering the stomach and partially neutralizing the overacid gastric juice. That this regurgitation of alkaline duodenal contents is a common or beneficial phenomenon during ordinary digestion, I doubt. The observance of a large number of alcohol and Ewald fractional test meals has not impressed me that it is a common finding. It is noted above that gastric juice is secreted at about .4 per cent concentration, but that, as extracted, it is usually about .2 per cent. With this in mind, we can understand that the control of acidity of the gastric juice during digestion is probably brought about in two ways. First, food entering the stomach causes the outpouring of an acid gastric juice. The acidity must remain at sufficient concentration to permit the optimum peptic activity, i. e., about pH 1.5. This is somewhat weaker than the secretion concentra-

tion of hydrochloric acid and it is due to dilution by food and neutral salts. Second, just what causes the cessation of the flow of the juice is unknown. It may well be that as the mixed content of the stomach reaches the ultimate acid concentration for peptic action, no more stimulation for secretion is sent out from the organ.

#### SUMMARY

The data which I have presented to you are sufficient to convince me that gastric analysis, as a routine diagnostic procedure, is archaic. There are, however, properly selected patients on whom, after deliberation the diagnostic possibilities have been limited, a study of gastric secretion is of importance. These instances have been described above.

Achlorhydria or high or low titratable acidity as unique findings are indicative of nothing and are better not determined.



## PATHOLOGICAL UTERINE BLEEDING\*

W. C. DIXON, M.D., F.A.C.S., Nashville

ABNORMAL uterine bleeding is a common symptom and is caused by numerous conditions. It may result from pathology in the female genitals or from pathology elsewhere. It occurs so frequently that it may at times be discouraging to try to trace down its cause, and for this reason it sometimes does not receive the consideration that it deserves. It may be easier to ignore it or to pass it over lightly rather than to search for its cause. Menstruation is the only example of a normal physiologic hemorrhage that occurs in human beings. Since this is true the laity is prone to attribute any bleeding, be it profuse, scanty, regular or irregular, to a perversion of a normal function. If in this instance familiarity does not breed contempt, it at least allows the woman a feeling of security that is frequently not justified. If menstruation were not familiar as a regularly recurring phenomenon, a show of blood would send the sufferer to her physician immediately.

This viewpoint is particularly true in relation to women approaching the menopause, and at this time wide variations in bleeding habits are complacently accepted by many women as a natural part of the menopause, which in due course of time will adjust itself. We, as physicians, are not entirely free from blame for the development of this attitude on the part of the laity. It may be easier to agree with a woman as to the cause of her bleeding than it is to make a careful search for the cause, but our inertia or laziness in this respect tends to confirm the feeling that abnormal bleeding is a natural phenomena that will eventually right itself. It may be that our lack of knowledge concerning a large group of patients with abnormal bleeding formerly contributed to this attitude.

For a long time there was a group of cases with abnormal bleeding occurring fre-

quently near the menopause who would cease to bleed after the menopause after years of debilitating hemorrhage and semi-invalidism. Formerly the cause of the bleeding in these cases was thought to be endometritis and every pathologist had his own classification for such cases. When Hitschmen and Adler showed that the tissue changes were merely cyclic changes in the endometrium and that endometritis was comparatively rare, other names were given to this condition such as uterine insufficiency and fibrosisuteri. These were merely labels for a symptom and did not explain the cause of the bleeding. Investigation in recent years has given us a definite explanation of these cases and has consequently tended to stimulate interest in the subject and to add to our knowledge concerning this type of abnormal bleeding. It has also taught us that abnormal, irregular or profuse bleeding is not a natural part of the menopause, but that this symptom always has a pathologic basis, which should be determined, and that we should not soothe ourselves or the patient with the statement that it is only a part of the change of life.

In a paper such as this it is impossible to go into details as to all causes of abnormal bleeding, therefore only a general outline will be attempted. Purely obstetric hemorrhage, such as postpartum hemorrhage, and that associated with placenta previa, belong to a different class and are not considered.

In investigating any case of pathologic bleeding it is useful to bear in mind certain general facts. One of the most important of these is the patient's age. Generally speaking, the causes of such bleeding are different in patients under 35 years of age than in those beyond this age. In other words, the patient's age is a good starting point in investigating the cause of bleeding. It is important to obtain a complete record of the patient's past menstrual history, from the time menstruation first ap-

\*Read before the Tennessee State Medical Association, Nashville, April 9, 10, 11, 1935.

peared. The date of the last menstrual period should always be obtained, as well as information as to whether it was normal in character, or whether it varied from the normal in duration, amount of flow or associated pain. We should learn whether the bleeding is a prolongation of a regular period or began at some time other than the regular time.

It is important to know whether the bleeding is continuous, or is irregular or spotting in character, whether it is associated with pain, and, if so, the character of the pain, and whether or not clots are passed. We should learn whether the bleeding occurs during exercise or exertion, or is caused by some slight trauma. We should ask as to whether there is any leucorrheal discharge and, if so, if there is any odor to it. Having obtained this general information we are prepared to consider the cause of bleeding in a given case.

On account of the number of conditions which may cause abnormal bleeding it is helpful to follow some regular order in the study of such a case. A classification of the common causes of this symptom is of value in this respect. The following classification of causes is recommended by Curtis. It has the virtue of simplicity and it emphasizes the frequent and important causes. In this classification there are five general groups, as follows:

1. Bleeding that results from pregnancy.
2. Benign tumors of the uterus.
3. Malignant tumors of the uterus.
4. Functional bleeding.
5. Other causes.

A brief discussion of each of these groups may be in order.

First, the commonest cause of abnormal bleeding during active sexual life is abortion, and in women during this period should always be taken into consideration. The history and physical examination usually serve to establish the diagnosis. It is particularly important here to have a detailed history of the last menstrual period.

When products of conception are retained in the uterus bleeding may be long continued. It may stop with the patient at rest, to recur when she gets out of bed.

This will continue until the uterus spontaneously empties itself or until the products of conception are removed. In cases of threatened abortion where the fetus is alive a positive Ascheim-Zondek test would be helpful. The finding of chorionic villi or fetal remains in tissue from the uterus is, of course, final. However, a few days' observation usually suffices to establish a diagnosis without resort to laboratory procedures.

The other cause of bleeding due to pregnancy to be considered here is ectopic pregnancy. It is sometimes difficult to differentiate extrauterine pregnancy from abortion. The physical signs on pelvic examination may be very similar. Frequently, however, in ectopic a mass may be found outside the uterus. The pain in abortion is usually cramplike simulating labor pains, while in ectopic pregnancy the pain is sharp and knifelike. The bleeding in abortion is usually larger in amount and more continuous, while in ectopic it is usually an intermittent spotting, which begins shortly after a missed period.

Peterson has said that ectopic pregnancy caused more mistaken diagnoses in his clinic than any other condition. As common a condition as abortion is at times misleading. In both of these conditions the wise physician takes into consideration the social aspects of the case. However one of the most helpful aids in the diagnosis of both conditions is the knowledge that abortion is the commonest cause of uterine bleeding, and that ectopic pregnancy, while not so common, is not rare.

The second group under this classification is benign tumors of the uterus. The two principal types of benign tumors producing bleeding are fibroid tumors and polyps.

Hemorrhage may be a prominent symptom in fibroids, but it is not unusual to see large nodular tumors with normal menstruation. However, bleeding is a prominent symptom in many cases and relief is frequently sought on this account. These tumors do not develop before puberty. They usually grow slowly, and as a result the average age at which relief from symptoms is sought is about 40 years. Bleeding



is usually present in those cases where the tumor grows toward the uterine cavity, and encroaches on the endometrium, the so-called submucous tumors. While it may occur in other types of tumors, either intramural or subperitoneal, it is probably due in these cases to disturbed ovarian function rather than to the tumor. The bleeding is typically an increase in the normal flow, a lengthening of the bleeding time, and an increased amount of flow; in other words, a menorrhagia. The amount of the bleeding varies. In some cases it may only cause a lengthening of the normal menstrual period. In others there may be an increased amount of flow for the normal number of days. The duration of the flow and the amount of blood lost may be so great as to produce a marked secondary anemia.

In some cases the bleeding time is so prolonged that one period may overlap the succeeding one and the woman may have slight, if any, rest from bleeding.

Polyps may originate either in the uterus or cervical canal. If protected within the cervix or uterus, hemorrhage rarely occurs. When they are present at the cervical os bleeding becomes the principal symptom. The bleeding is irregular in type and bears no relation to menstruation. It may occur on exertion or straining or be caused by slight trauma, as from a douche nozzle. If ulceration of the polyp occurs bleeding may be profuse.

The third group of cases is composed of malignant tumors of the uterus and cervix, sarcoma, chorionepithelioma, carcinoma of the cervix, and carcinoma of the body of the uterus. Chorionepithelioma is a very rare disease, and sarcoma of the uterus, while more frequent, is also rare and will only be mentioned. Carcinoma of the cervix is common and is the cause of many tragedies. Some of these are brought about by neglect of the symptom, hemorrhage. It is the most frequent form of cancer of the uterus, occurring in about the proportion of four cases of cervical cancer to one case of cancer of the body. It is a disease of the middle period of life, occurring most frequently between the ages of 35 and 55. The average age in several large series of

cases ranged from 48 to 51. It is no respecter of age, however, and may occur at either an earlier or a later period.

Bleeding is the only definite symptom of cancer of the cervix. Some women develop a leucorrheal discharge, or have a change in the character of an already existing discharge, but this is not always true, and if present is usually not regarded as of any moment by the woman. The first thing to attract her attention is the bleeding. This is usually slight at first, brought on by exertion or slight trauma as from a douche nozzle or coitus. Typically, it is an irregular spotting, a metrorrhagia, and bears no relation to the woman's regular menstrual cycle. The spotting character of the bleeding is suggestive and is the usual story, although in some cases a considerable hemorrhage may be the initial symptom. Foul-smelling discharge, pain and cachexia are all late symptoms. In a woman with this type of bleeding, particularly if she has borne children and is 35 years of age, carcinoma of the cervix should be suspected. In making the examination we must remember that there are two types of cervical carcinoma. First, the type which originates on the vaginal aspect of the cervix and grows outward, the everting type which produces the cauliflowerlike masses protruding into the vagina. Second, the type originating within the cervical canal, the inverting type which may produce marked destruction and excavation within the canal, while on inspection the cervix may appear to be normal. Eventually Schillers iodine test or examination with the colposcope may greatly aid in an early diagnosis of these cases, but at present, for the most of us, the practical procedure is to obtain tissue for examination by the curette, or knife, or biopsy forcep, in any case of which we are suspicious.

Carcinoma of the body of the uterus usually occurs in an older age group than does carcinoma of the cervix. The majority of the cases occur between 50 and 65 years. It occurs frequently after the menopause. The bleeding is of the same type as that found in cancer of the cervix, that is, an irregular spotting. The bleeding is rarely

large in amount. It may be brought on by exercise or slight trauma. It is at first intermittent and may stop for a considerable time. However, it increases in frequency and amount, and may be continuous in advanced cases. Bleeding from the uterus, in a woman beyond the menopause, should always be taken as positive evidence of cancer of the body of the uterus until it can be proven to the contrary, and the burden of proof rests on the doctor. Sampson feels that complete hysterectomy is justifiable in such a case without curetting to obtain tissue for examination, and Curtis says that in the absence of polyps, bleeding after the menopause always means cancer. It is still, however, the general practice to obtain tissue for examination in such cases by careful curettage before instituting treatment.

The fourth division in this classification is functional bleeding. It is due to a disturbance in the normal relationship between the ovarian hormones.

There is a persistence of the follicle hormone, theelin, and a failure of the corpus luteum hormone progestin.

It is associated with a characteristic histologic pattern in the endometrium, a marked hyperplasia of this structure usually being found. The bleeding tends to occur at the two extremes of menstrual life, at puberty or near the menopause, although it may occur at any age. Characteristically, the bleeding is a menorrhagia, a lengthening of the normal bleeding time. This may progress until the bleeding is continuous, one period overlapping another. This type of bleeding is not always present, and in some cases the bleeding may be irregular. The amount of blood lost varies, but in some cases may be extreme. Pelvic examination in this condition usually discloses pelvic organs that are apparently normal. These are the cases which were formerly thought to be due to endometritis, and the hyperplastic changes in the endometrium were thought to be inflammatory. Later they were classified as fibrosis uteri or uterine insufficiency. They are now known to be due to the influence of the ovarian hormones on the endometrium. Endometritis, that is, a true inflammation of the

endometrium, due to infection, is rare, and is an infrequent cause of uterine bleeding. It is probably true that in some other conditions that are at times associated with bleeding, such as pelvic infections, retrodisplacements of the uterus and ovarian tumors, the real cause of the bleeding is a disturbed ovarian function and the resultant changes in the endometrium. The local pathology may, of course, contribute to the ovarian changes.

Functional bleeding is easily diagnosed by an examination of tissue from the uterus. Since many of the cases occur in women within the cancer age, it is important that this be done. Cases occurring in young girls may be temporized with for a time if the hemorrhage is not excessive, but in older women early resort to tissue examination should be the rule.

The preceding four groups in Curtis' classification of the causes of uterine hemorrhage contain the majority of the important causes of this symptom. They should be thought of first and any case of uterine bleeding should be investigated with them in mind.

His fifth group includes rarer causes, such as senile vaginitis, cervical erosions, certain constitutional conditions, such as influenza, occasionally hypertension, and rarely some blood dyscrasia. Cases from such causes are comparatively rare and few cases of bleeding can be explained on this basis.

Any woman who gives a history of abnormal bleeding deserves a thorough investigation in an effort to determine its cause.

Many cases can be cleared up by simple vaginal examination. This should include both digital examination and inspection of the cervix with the aid of a speculum and a good light. However, a good many can only be correctly diagnosed by the examination of tissue removed from the uterus or cervix. This should be resorted to in any doubtful case.

If we are to make any progress in the treatment of cancer of the uterus and cervix, in the light of our present knowledge, it must come by seriously considering every case with abnormal bleeding, and by



frequent resort to tissue examination on suspicious cases.

### DISCUSSION

DR. W. T. BLACK (Memphis): Mr. Chairman, as Dr. Dixon has so well said there is no such thing as normal uterine bleeding except menstruation. Uterine bleeding can be properly classed under three general headings: general causes, local causes, and functional uterine bleeding.

Under general causes would be the blood dyscrasias, cardiorenal disease, hepatic cirrhosis, infection diseases where the infection affects the ovaries through the hematogenous route, and a great many other immediate causes.

Local causes are the principal cause of uterine bleedings, and the abnormalities of pregnancies are the principal cause, such as incomplete abortion, placenta previa, attachment of the placenta, and ectopic pregnancy.

We occasionally become confused in the metrorrhagic type of bleeding that we find in tubal pregnancy. Tubal pregnancy occurs in one out of every 300 pregnancies, and the woman either aborts or has rupture of the tube. Seventy-five per cent of these cases will abort, either a complete tubal abortion or an incomplete tubal abortion. The hemorrhage may be extended over several days and be metrorrhagic in type and it is confusing in the differential diagnosis. However, the diagnosis of pregnancy itself may be made by the Aschheim-Zondek test. If you have a definite rupture of the tube, of course, you are familiar with the sudden abdominal pain with severe shock which is characteristic. Sometimes these women are curetted, believing that they have normal pregnancy. In such cases you fail to find the chorionic villi.

Following pregnancy we also have bleeding at times which continues for several weeks after either normal pregnancy or an abortion. Often-times in these cases we have retained placenta or a placentoma. After curettment and the recurrence of hemorrhage one should be very suspicious of chorioepithelioma, which can be detected by the disarrangement of the syncytial and Langhans's cells.

Women who bleed too much during the menopausal age are told by their neighbors that they did the same thing and it is perfectly normal, but a woman who bleeds too much during the menopausal age usually has one of two or three things. She may have a fibroid tumor, and if she has a fibroid tumor the menstruation becomes more profuse every month at regular intervals. If she has carcinoma at this time she has a metrorrhagic type of bleeding. If the woman has passed the change of life and then commences to bleed, she may have a granulosa cell tumor which manufactures estrin and continues the normal physiological function of the ovaries. She may also have this hemorrhage before puberty.

In a woman who is bleeding during the menopausal age one must always think of functional

trouble, but she should have a good physical examination first and a pelvic examination to eliminate any pelvic pathology.

The proper thing to do at this time is a diagnostic curettage. You usually have a hyperplasia of the endometrium in such cases. You usually have a hyperplasia present in fibroid tumor cases. A woman during the menopausal age should, first, be given antuitrin-s or follutein, and if this fails she should have radium, which gives almost a 100 per cent cure.

DR. FRANKLIN B. BOGART (Chattanooga): I know we appreciate the paper of Dr. Dixon very much. He took up chiefly the groups of cases which cause uterine bleeding rather than treatment, and what I want to say is about a comparatively small group, the group that you can do something with by the use of X-ray or radium.

I think when an X-ray man speaks on a phase of a subject of this kind, it should always be emphasized to the general man that no radiologist would or should attempt to take a case like this and treat it until it has been thoroughly worked up by a clinician, and that again emphasizes the point that proper cooperation between the radiologist and the surgeon or the general man in charge of the case is very essential. This is certainly true in these cases of uterine bleeding.

When you do select your case, then you have a considerable group which you can cure or do a lot for with radiation. There is a group of carcinoma of the cervix, of course, in which radium is the treatment of choice in the vast majority of instances. But the group in which results are most gratifying is the group of functional bleeding and the group with multiple small or single small fibroids, with or without the functional association, I mean functional bleeding with or without the small multiple fibroids.

Of course, when that functional bleeding occurs in a young girl you cannot handle it with radiation in the same way that you can at the time of menopause.

You can accomplish a lot with X-ray or radium, using small doses to check the bleeding temporarily and then going on with other methods in the hope of restoring the proper relationship and establishing normal function.

In the group of cases where bleeding does occur at the time of menopause, if they have been properly selected radiation gives very brilliant results and very satisfying results.

The fact has been emphasized that small fibroids can be taken care of very well with irradiation, but larger fibroids can best be handled with surgical measures if there is no contraindication to surgery, but when you do get a fibroid of considerable size and there is some definite contraindication to surgery you will find in a great many of those cases very gratifying results can be obtained with radiation.

DR. W. C. DIXON (closing): I purposely did not take up the question of treatment. The paper was more an effort to emphasize the fact that there is no such thing as a normal excessive hemorrhage at the menopause. I think the fact that this functional group of cases due to the disturbance of the ovarian hormones does recover after the menopause after years of hemorrhage has implanted in the mind of the laity and perhaps to some extent in our own minds in fact, that menstrual irregularities or excessive bleeding around the menopause is something that will take care of itself, and in the functional group it will if the woman can endure it long enough, but we now have a definite explanation for that type of bleeding, and consequently it is easily diagnosed and easily put where it belongs, it is easily treated, as Dr. Bogart said, and it is probably one of the finest applications that we have for the use of radium. But the fact that there is this large group of patients with this type of bleeding allows the laity to assume that all bleeding around the menopause will stop spontaneously if the woman can live until the menopause is over. Of course, in cancer of the cervix and cancer of the body of the uterus we are losing valuable time. We have all had the experience—there is not a man in this room who has not—of having a woman come to us and say: "Doctor, I have been bleeding a little bit and the neighbors all told me it was the change of life."

"How long have you been bleeding?"

"Well, six months," sometimes a year.

You examine the woman and she has a hopelessly

advanced carcinoma of the cervix or carcinoma of the body of the uterus. Of course, the earlier these cases can be obtained the better are the results.

As Dr. Bogart has pointed out, there is a very hopeful field for the use of radiation in many of these cases, and I believe that we get a little better results all the time in the cases of cancer of the cervix and cancer of the body of the uterus. We have been a little too pessimistic about the end results. Lord knows they are bad enough, but every once in a while you do see patients who have had five-year or ten-year cures from cancer of the cervix. In cancer of the body of the uterus, if it can be found and the uterus removed, radiation not being applicable to cancer of the body of the uterus as it is to the cervix, a very high percentage of those cases are cured. Cases limited to the body of the uterus have a fifty or sixty per cent chance for permanent cure where the entire uterus is removed.

Dr. Black brought up the subject of granulosa cell tumors. I purposely avoided any new or rare types of bleeding. Granulosa cell tumor is something that we have just learned about and everybody is looking for it and every time one comes up it is reported, but it is a rare cause of post-menopausal hemorrhage. Any woman beyond the menopause who bleeds we should assume has cancer of the uterus, and it is up to us to prove to the contrary and we have not done our duty by that woman unless we do.

I wish to thank you for your indulgence and the gentlemen for their discussion.



## DIVERTICULITIS OF THE COLON\*

C. H. HEACOCK, M.D., Memphis

WHILE THE subject of diverticula of the intestines is not new, it is also not old as the histories of diseases go. It is true that they were first described by Cruveilhier in 1849, but it was not until fifty years later that Gracer again directed attention to them. It was not until 1914 that they were recognized roentgenologically. Since that time the ever-increasing reports of this condition in medical, surgical, and roentgenological literature has brought convincing evidence of its enlarging clinical importance.

We may have more or less isolated congenital diverticula in the colon, like Meckel's diverticulum in the ileum, but they are only of anatomic interest. These are not taken into consideration when we speak of diverticulosis of the colon. The latter term is reserved to describe the numerous acquired small, hernia-like protrusions usually found in the distal colon.

## ETIOLOGY

McGrath listed twelve conditions which have been held by various authors to play a part in the formation of diverticula. The most commonly accepted is a structural weakness of the muscular coat. From a close post-mortem study of colons, Barrett found the walls to be irregularly thickened and thinned, that the muscularis showed fatty degeneration with loss of elasticity, and that the mucosa showed trabeculation. He concludes that diverticulosis is not merely a mechanical result of overdistention pushing mucous membrane through the musculature, but that time, age, irritations, infection, putrefaction, etc., cause changes in the bowel wall, such as trabeculations, folds, fissures, and proliferations of mucous membrane. In the presence of these changes, increased pressure, due to increased contents or straining, makes it easy for the proliferating mucous membrane to find the weak places in the wall.

Probably more than one factor is important in the etiology. It is certainly true that diverticulosis occurs more commonly in obese men past forty years of age. It is also true that these individuals usually give a history of long-standing constipation. It has been noted that two types of individuals are especially prone to develop these diverticula: (1) Very active men who rather suddenly begin to live sedentary lives and (2) obese individuals who lose a great deal of weight in a short time.

## PATHOLOGY

McGrath gives a complete review of the pathology. According to him, nearly all the diverticula of the colon are of the false type, that is, they are hernias of the mucosa through the muscularis. They vary greatly in size and number. They are usually round or ovoid, often sessile, and frequently pedunculated. The opening into the bowel may be narrow and practically stenosed, or it may be quite as wide as the diverticular sac itself. The sacs usually contain fecal matter and sometimes fecaliths. The term diverticulosis should be reserved to designate the presence of these sacs. Their mere presence need not be of pathological significance, and the term, diverticulosis, generally assumes that there are no symptoms referable to the diverticula. Telling takes the position that diverticulosis is of no more pathological significance than the presence of an appendix. However, most of the observers believe that diverticulosis in itself is a pathological process.

The diverticula occur most commonly in the left colon and especially the sigmoid. Here we are most likely to have stasis and the presence of numerous bacteria of many kinds. Mucous membrane, projecting beyond the lumen, is subjected to muscular trauma and the irritation of the retained fecal matter. They become breeding places for bacteria and the seat of an inflammatory reaction. With the advent of this inflammatory reaction, the term diverticulosis

\*Read before the Tennessee State Medical Association, Nashville, April 9, 10, 11, 1935.

should be discarded and diverticulitis substituted.

Based upon the pathology, Case describes three types of diverticulitis as follows:

- (1) Enterospasm type.
- (2) Hyperplastic type.
- (3) Pseudoappendicitis type.

The enterospasm type includes those cases of scattered diverticula where apparently all the symptoms are caused by the accompanying spasm which is due to the irritation from the retained contents of the diverticular sacs.

The hyperplastic type is usually closely grouped collections of diverticula. Because of their close arrangement, the inflammatory processes coalesce and become a peridiverticulitis. This extramucosal proliferative inflammation is the most common pathologic process. The mass formed may be large enough to be palpable and may result in adhesions between the colon and the small bowel, the bladder, the uterus, or the adnexa. The adhesions enclose what amounts to small abscesses. Ruptures or fistula are resulting complications.

The pseudoappendicitis type is really an epiploic appendicitis. A diverticulum has formed within an epiploic appendage and has undergone acute inflammation. Case states that he has operated upon several patients in which only one tag was involved, and complete recovery resulted from its removal.

#### SYMPTOMS

Diverticula occur about twice as frequently in males as in females. The patients are usually inclined to be obese, and appear to be in good health. The symptoms are usually a vague abdominal distress and vary somewhat according to the type of diverticulitis. If we have the first type, where the symptoms are all due to spasm, there is only discomfort in the left lower quadrant with some reflex gastric upsets. In the second type, the pain is more severe and is accompanied by tenderness. There are recurrent attacks of colic, which may be accompanied by mild fever and leucocytosis. When the process is long standing, and there is a great deal of peridiverticulitis, we have obstructive symp-

toms. The appearance of a mass, its disappearance, and reappearance within a few days, is almost pathognomonic of a peridiverticulitis. In the pseudoappendicitis type, the patient, usually with a long history of diverticulitis of the spastic type, suddenly develops acute symptoms demanding immediate attention.

The symptoms and physical findings are usually too indefinite to make a diagnosis. Very little positive help is obtained from the examination of the stools. About fifteen per cent of the cases show some blood, but otherwise the laboratory tests are usually negative. The sigmoidoscopic examination is likewise usually negative and often dangerous. The best and frequently the only method of detecting their presence is by the roentgen ray.

#### ROENTGENOLOGIC DIAGNOSIS

In the radiological examination of the colon, diverticula are the most common finding—about five to eight per cent of all patients past forty years of age. However, this is diverticulosis. Probably about ten per cent of these will manifest signs sufficient to warrant the diagnosis of diverticulitis from the roentgen examination alone. In a few more a correlation of the clinical and roentgenologic findings will establish the diagnosis of diverticulitis. But the great majority must be regarded as incidental findings. This radiological observation of the relative infrequency of inflammatory reactions in diverticula is supported by the post-mortem study of Mailer, who found gross evidence in only four cases out of a total of thirty-four cases studied.

The roentgen diagnosis of diverticula rests upon the finding of small, round shot-like extraluminal shadows that show a tendency to retain barium when the lumen is empty. Moynihan has described diverticula as "a wayside shelter by a main path." The connection between the lumen and the sacs cannot always be demonstrated. It is important to note whether they maintain a constant position, as sharp haustrations may simulate a sac formation. The fact that these sacs may already contain a fecal residue that will prevent their filling and visualization must be borne in mind. Many



times a white ring with a dark center is seen. This means that the diverticulum is filled with a fecal mass with just enough room around it for some of the opaque media to enter. Other saucerlike shadows or crescents are visualized when the entire sac is filled with an enterolith and only the base contains barium. Patients have been seen in which lime salts had been deposited in the enteroliths. They all were visualized on a roentgenogram. When recovered later in the stool, they were found to be enteroliths upon which had been deposited layers of lime salts and bile salts.

It would seem that the barium enema, which is thin and fluidlike, would be more likely to find its way into the sacs than barium given in an ingested meal. The latter, by the time it has reached the pelvic colon, has lost much of its fluid content. However, the enema so completely fills the lumen that all the sacs except those on the borders are overshadowed. The enema also overdistends the bowel and tends to close the openings. Both methods have their advocates, but I prefer making the examination with the enema. The objections to the enema can be greatly overcome by allowing it to remain in the colon for a short time and then reexamine the patient after he has been given an opportunity to expel it. A great deal of information can be obtained if another observation is made the day following the enema. I believe that the enema also has some advantages in studying the changes in the lumen that accompanies a diverticulitis. When an opaque meal is given, the diverticula are most likely to be visualized on the second and third days after the meal. It is quite true that in some cases both methods must be employed to obtain the maximum amount of information. If both methods have failed, and a diverticulitis is strongly suspected, another attempt should be made, using a barium enema, after belladonna has been given to full physiologic effect for twenty-four to forty-eight hours, and the colon emptied by several cleansing enemas.

In addition to detecting the presence of the diverticula, the roentgenologist should be able to decide whether there is an as-

sociated diverticulitis and usually the pathologic type. In the hyperplastic type as the wall of the colon becomes thicker, two roentgenologic signs become apparent. The first of these is an increased length in the necks of the diverticula or a greater distance between the sacs and the lumen. An additional finding in these cases, that of marked pericolic thickening, has been noted by Case. The thickened sigmoid, covered with fat and swollen epiploic appendages, forms a mass which displaces the coils of the ileum upward and to the right. By filling both with a contrast media and then measuring the distance between the two, a fairly accurate idea of the amount of pericolic thickening may be obtained.

In the hypertrophic type, when the diverticulitis and peridiverticulitis are confined to a fairly localized area, the diagnosis may be very difficult. The inflammation causes spasm which manifests itself as an irregular narrowing of the lumen. All haustral markings and all flexibility of the colon disappear. The openings of the diverticula are clamped shut as if by a sphincter muscle. The resulting filling defect, although due to spasm, may be so constant that it cannot be differentiated from one due to a carcinoma. Usually there are some near-by sacs beyond the zone of narrowing that can be filled, and thus a clue as to the underlying pathologic process is obtained. If not, the roentgenologist is justified in reporting the finding as a neoplasm. However, such a finding warrants a conference between the clinician and the roentgenologist; and a reexamination after belladonna and treatment directed toward the relief of an inflammatory lesion.

Not infrequently the narrowing of the lumen progresses to the point of complete obstruction. None of the enema can be made to pass beyond the inflammatory zone. The roentgenologist is then confronted with the same problem as in the case of the inflexible filling defect just mentioned and the same measures must be taken to solve the problem.

#### DIVERTICULA AND CARCINOMA

While tuberculosis, syphilis, and actinomycosis must be considered in a differential

diagnosis, the real differential diagnostic problem is between diverticulitis and carcinoma. Frequently it cannot be done either clinically or radiologically. Even at operation, differentiation is not always possible, and the final word must be left to the pathologic report. This is particularly true in the hyperplastic type that has gone on to the point of obstruction. The mere finding of diverticula does not exclude cancer, and the finding of a filling defect without visible diverticula does not exclude diverticulitis. If chronic inflammation and irritation are contributory factors in the cause of cancer, then diverticulitis should be regarded as a precancerous condition. Mailer examined eight cases in which the two conditions were both present, and thought the malignant process was primary in the lumen of the bowel and not in the diverticula. It is generally accepted that they coexist in about fifteen per cent of the cases, and, although they occur in the same age period, this percentage is too high to be incidental. Telling thinks that carcinoma can cause diverticula, and is certain that diverticula may be followed by carcinoma. He states the following rule: No case of supposed carcinoma of the lower bowel must, in the future, be regarded as inoperable either before or at laparotomy unless diverticulitis has been remembered, fully considered, and systemically investigated.

#### TREATMENT

Not even the most enthusiastic radiation therapist has advocated the roentgen rays or radium in the treatment of diverticulitis. Nor will I, as a roentgenologist, attempt to outline a treatment to clinicians. However, that is the question in which you are primarily interested, and I will outline briefly what some writers have advocated.

Barrett emphasizes the prophylactic treatment. He warns against overeating and laxity in exercise and says that obesity, constipation, and an overfull abdomen should be corrected by more exercise, less food, and mineral-oil enemas. Cases of diverticulosis are symptomless and require no active treatment except to observe the cautions already mentioned. In uncomplicated

cases of diverticulitis, there is a variance of opinion in regard to the combating of constipation. The attitude of Wilkinson seems reasonable. He believes that laxatives and purgatives are as contraindicated in diverticulitis as they are in appendicitis. Neither does he advocate enemas. At the Lahey clinic, they attempt to keep the stools formed by regulation of the diet. This is a bland, nonirritating one, consisting mostly of carbohydrates at the beginning, and later adding low-residue vegetables and cooked fruits. Rest in bed is insisted upon at the onset of the treatment. All writers pretty well agree that drugs, with the exception of belladonna, are worthless.

Of course, the treatment of the acute cases is surgical. The complications, as localized peritonitis, fistula, and obstruction, also require surgical intervention. In the latter cases, surgery carries a mortality of about ten per cent. The surgical procedure advocated by Huston seems unique. He withdraws the loop of the bowel containing the infected diverticula through a split muscle incision. Hot boric acid dressings are then applied until the inflammatory process has subsided. The loop of bowel is then replaced beneath the abdominal wall, but external to the peritoneum. When there is obstruction or evidence of malignancy, most surgeons advise a Miluliaz resection.

#### REFERENCES

1. Barrett, C. W.: "Diverticulosis and Diverticulitis." *Am. J. Surg.*, 1933, XIX, 143-147.
2. Bollin, N.: "Diverticulitis of the Colon." *Am. J. Surg.*, 1927, II, 130-141.
3. Carman: Book.
4. Case, J. T.: "The Roentgen Study of Colonic Diverticula." *Am. J. Roentgenol.*, 1929, XXI, 207-220.
5. Cruveilhier, J.: "Traite d'anatomie descriptive." 1849, I, 593.
6. George, A. W., and Leonard, R. D.: "Use of X-ray in the Study of Multiple Diverticulitis of the Colon." *Med. Clin. N. Am.*, 1919, II, 1503.
7. Gracer, E.: "Das falsche darmdivertikel." *Arch. Fklin Chr.*, 1899, LIX, 638.
8. Huston, H. R.: "Diverticulitis of the Colon in Women." *Arch. Surg.*, 1933, XXVI, 1111-1117.
9. Larimore, J. W.: "Diverticulitis of the Large Intestine." *J. Mo. State Med. Assoc.*, 1925, XXII, 129.
10. McGrath, B. F.: "Intestinal Diverticula;



Their Etiology and Pathogenesis." Surg., Gyn., and Obst., 1912, XV, 429.

11. Mailer, R.: "Diverticula of the Colon—A Pathological and Clinical Study." Lancet, 1928, II, 51-57.

12. Mayo, W. J., Wilson, L. B., and Griffin, H. Z.: "Acquired Diverticulitis of the Large Intestine." Surg., Gyn., and Obst., 1907, V, 8-15.

13. Moynihan, B.: "Diverticula of the Alimentary Tract." Lancet, 1927, I, 1061.

14. Spriggs, E. I., and Marxer, O. A.: "Multiple Diverticula of the Colon." Lancet, 1927, I, 1067-1074.

15. Telling, W. H. M., and Gruner, O. C.: "Acquired Diverticula, Diverticulitis, and Peridiverticulitis of the Large Intestine." Brit. J. Surg., 1917, IV, 468-530.

16. Telling, W. H. M.: "Acquired Diverticula of the Sigmoid Flexure." Lancet, 1908, I, 843-928.

17. Telling, W. H. M.: "Multiple Diverticula of the Sigmoid Flexure." Brit. M. J., 1908, II, 1346.

18. Wilkinson, S. A.: "Diverticulosis and Diverticulitis of the Colon." N. E. Jour. Med., 1933, 209; 197-202.

#### DISCUSSION

DR. D. R. PICKENS (Nashville): Mr. President and Gentlemen: I enjoyed Dr. Heacock's paper very much, and, as you see, he has given some very nicely illustrative plates. That is about the only way you can be sure of your diagnosis.

In contrasting the enema and the meal by mouth, personally, I prefer the enema, let the patient pass all he can, and take the picture a few hours or even a day later. I think the picture will show more the next day than at the time of the enema because of the overlapping of the barium, hiding the diverticula. Diverticula occur most commonly in the sigmoid, as he showed in the pictures. It is estimated that about 77.8 per cent are located in this area. However, you may find them along the entire colon and occasionally in the cecum.

Out of 24,620 cases X-rayed at the Mayo Clinic a few years ago, 5.6 per cent showed diverticulosis. It is estimated that about fifteen to seventeen per cent of this 5.6 per cent produced symptoms sometime during the patient's life.

There has been quite a discussion about the association of carcinoma and diverticulitis. Recently a great many men have concluded that carcinoma is probably a coincidental affair rather than that the diverticulum produces the carcinoma.

Out of twenty-seven cases of diverticulitis requiring operation at the Mayo Clinic over a few years, coexisting carcinoma was found in four, and out of 679 cases operated for carcinoma of the large bowel, four cases of diverticulosis were found. In other words, eight cases in this large series were found of diverticulitis and carcinoma. It seems that they are incidental rather than that they play any important part.

The one serious symptom, of course, that may result from diverticulitis is perforation. Divertic-

ulitis is probably the most common cause of perforation of the colon. The next two are carcinoma and chronic ulcerative colitis, these being the three most common conditions that cause perforation. Fortunately, diverticulitis, as a rule, will not perforate often into the free peritoneal cavity; in other words, it is a slow perforation, allowing nature to wall it off. You more commonly have an abscess or mass producing more or less obstructive symptoms.

Another serious complication that may be raised with inflamed diverticulum is perforation to the bladder. This is a very serious thing, and in a series of fifty some odd cases (they were reported so long ago I do not remember just how many there were now) sixteen perforations were in the bladder. This is not only a serious thing, but it entails a difficult operation for its correction.

Diverticula of the bowel or diverticulosis of the bowel requires no treatment as a rule beyond dietary measures unless you have acute inflammation or diverticulitis present. These acute cases should be put to bed, with rest, bland diet, free from residue, ice bags, hot colonic irrigations, rectal irrigations, as most of them are in the sigmoid, and most of them will subside or form an abscess, probably to recur or maybe go a long time without recurring, without symptoms, but these patients should be kept on a bland diet, free from residue, especially seeds, small particles of food, bran, whole-wheat bread, and purgatives. In my opinion, the person with diverticulitis once present should take mineral oil the rest of his life, in small doses, one or two teaspoonfuls two or three times a day, rather than an ounce once or twice a day.

DR. E. G. WOOD (Knoxville): Mr. Chairman and Gentlemen of the association: Dr. Heacock has given us a most thorough resumé of the etiology, some of the factors, different opinions of the men, the symptoms, and has mentioned the treatment, as well as has given us some beautiful illustrations from the radiologist's standpoint. When we consider, gentlemen, that it has only been since about 1914 that radiological studies of diverticulosis and diverticulitis have been made, we certainly should congratulate the radiologists for the great help they have given us, especially the help they have given the surgeon.

What I have to say relative to the subject is principally from the standpoint of the surgeon.

Although diverticulosis or sacculation along the lumen of the large bowel is a condition uniformly asymptomatic, because of obstruction, or for other reasons, fecaliths may not be discharged into the colon, but may remain imprisoned, and there may arise a condition no longer recognized as unique, namely, diverticulitis.

It may be interesting for us to recall that three or four per cent of all individuals suffer from diverticula and that the disease usually occurs between the fourth and fifth decades of life. It

may also be of interest that about thirty per cent of cases of ulcerative colitis result in multiple polyposis or diverticulosis, and that about thirty per cent of these result in cancer of the sigmoid. Of further interest also is the fact that the diverticulum contains only the two coats, the peritoneum and the mucosa.

As to the etiology, that no one factor produces diverticula seems the most likely conclusion of the study of the experiences of the many observers. It seems reasonable to assume, however, that the outstanding features of their formation have to do with inherent weakness of the wall of the bowel, in addition to increased intracolonic pressure, which results from constitutional or environmental causes, and undoubtedly obesity, venous stasis, and constipation, with their noxious cycle of intoxication and lowered resistance, play a part. While in the small intestine the acquired diverticula are usually constant in their relationship to the wall of the bowel, developing at the mesenteric attachment or a little above it, on the other hand, in the colon diverticula are not constant in their relation to the mesentery and may be found at any point along the circumference of the wall of the bowel, a fact which has added to the confusion as to etiology, particularly as it is affected by the relationship of the blood vessels and the longitudinal muscle bands.

As to classification of diverticulitis, I think one as suggested by Rankin is most fair and rather easily explanatory:

- (1) Acute.
- (2) Chronic.
- (3) Complicated.
  - (a) Abscess formation.
  - (b) Fistula—external; internal, vesicolic, enterocolic; multiple.
  - (c) Associated with malignancy.

Rankin considers acute, subacute, and chronic diverticulitis to be fundamentally medical problems and the complications essentially surgical. The exact relation of carcinoma to diverticula seems still to be questionable. There is no reason why a carcinoma should not develop in the mucous membrane of the diverticulum, and this does happen occasionally, but there is little evidence to support the view that carcinoma is the result of the diverticulitis. Occasionally carcinoma and diverticulitis are associated, and apparently one is able to demonstrate a carcinoma arising from a diverticulum, but the percentage occurring is almost negligible. The so-called mimicry of carcinoma which diverticulitis has been accused of is infinitely more theoretic than real. Rankin reported only four cases in a series of 227 cases of diverticulitis, and further in a series of 679 cases of operation for carcinoma of the bowel diverticulosis was found in only four.

The outstanding symptom of diverticulitis is pain, usually situated in the lower left portion of the abdomen, and frequently associated with con-

stipation. Change in bowel habit is a confusing factor. Acute symptoms remind you of a left-sided appendicitis, nausea, vomiting, pain, rigidity, elevation of temperature, and increased leukocyte count. The obstructive type is the result of a diverticulitis or a cicatricial contraction of the tissue with obstruction of the sigmoid.

If a tumor mass can be palpated in the lower left side of the abdomen, we should always be on the lookout for a malignant condition. Again, remember bleeding is not commonly found among the symptoms of uncomplicated diverticulitis or diverticulosis. When it does occur, an associated malignant condition is always suspected, but frequently not found.

In a definite percentage of cases diverticulitis tends to become complicated. The most common complications are abscess, fistula, and perforation. The treatment of the complications of diverticulitis is usually surgical, particularly of the internal fistulous formation, in which a viscus, such as the bladder, is penetrated by the inflammatory process.

As long as primary resection is accompanied by a relatively high mortality rate, a graded procedure consisting of drainage and subsequent resection and anastomosis is the procedure of choice. Many of these cases of tumefaction completely recess after drainage, and all clinical symptoms disappear, rendering unnecessary further intervention. In cases of diverticulitis the danger is general peritonitis, and, as you know, the danger from carcinoma is metastasis.

DR. J. CASH KING (Memphis): Mr. Chairman and members of the association: There is scarcely anything to be added to this presentation, but I should like to emphasize one or two points. First, many of these cases of diverticulosis who later have trouble from diverticulitis have at one time previously in their medical history had a roentgenoscopic examination of their gastrointestinal tract with a diagnosis of diverticulosis. However, the patient was not informed of the presence of the condition, and, unfortunately, many times the family doctor, who is in charge of the care of the patient at home, was not told of this condition either. Consequently, when an attack of diverticulitis develops, the family physician has an entirely new problem to cope with. It is the duty of the specialist who examines a patient to send a complete written record of his examination and treatment suggested to the family physician.

Now the very chronic cases that merely produce annoying symptoms not severe enough to warrant surgical intervention are many times relieved by bland diet, avoidance of purgatives (which is particularly important), and by the use of small doses of barium sulphate. The barium sulphate that is used for X-ray examination seems to clear the sacs by a displacement procedure; the barium being an inert substance, devoid of food



or media on which bacteria may grow, fills the diverticula, displacing the intestinal contents. Then by giving mineral oil the barium may be emptied from the diverticula sacs. I have observed complete relief in practically 100 per cent of these cases with only mild, chronic symptoms by using the barium sulphate (two ounces by volume) followed in two days by mineral oil. Of course, the patient must observe the precautionary measures previously mentioned.

DR. J. HOWARD KING (Nashville): Mr. Chairman, members of the association: You who have been practicing medicine for twenty to thirty years, I am sure, will remember the time when diverticulitis or diverticulosis as mentioned would have been considered an extremely rare thing. I think the importance of this paper today, the thing that Dr. Heacock has brought to us, is the up-to-date presentation of a condition which is a fairly common thing, and we X-ray men realize that, I feel, more than do you general practitioners.

There is just one point I want to bring out that perhaps was not thoroughly brought out in the paper. Not very long ago we were asked to make a colon examination of an old lady who had fairly typical symptoms of diverticulitis. The first enema given failed to show any of these extraluminary projections or deformities whatever, enough so that I would say in that instance had we not thought of further examining that patient we might have passed her up as being negative so far as diverticula were concerned.

However, in that particular case there were three very definite areas of what I would call spastic indrawings in the colon which were easily noted. Some four days following that examination we decided to reexamine that colon. During this time the distress in the abdomen had largely subsided. The second colon examination showed a remarkable lot of very definite diverticula, and especially at each point of the spastic indrawing there was noted a very large diverticulum with quite a long neck.

DR. C. H. HEACOCK (closing): I want to thank the men for their contributions in this discussion.

Diverticula are the most frequent radiological finding that we have in the colon, and, as radiologists, I think we are under great obligations to report them. Then the practitioner, by knowing their presence, can institute the prophylactic treatment, which, after all, is the best treatment. If he can prevent the diverticulitis, he has really practiced preventive medicine in a great way.

I did not have time to read quite all my paper and show all my slides, but I mentioned the fact that Dr. Howard King brought out so well about reexaminations. They should be done whenever there is a definite history of diverticulitis and no diverticula can be visualized on the first examination. It is my practice to ask the patients to return after twenty-four to forty-eight hours, during which time they are given atropine or belladonna to the full physiological effect.

## DIAGNOSIS AND TREATMENT OF INTESTINAL OBSTRUCTION\*

ERNEST G. KELLY, M.D., F.A.C.S., Memphis

IN APPROACHING the question of diagnosis of acute intestinal obstruction, it should be clearly borne in mind that if the life of the patient is to be saved, diagnosis must be made early. There are few diseases in which an early diagnosis is more essential. On the other hand, there are few diseases in which an early diagnosis is more difficult to make. This is demonstrated by the fact that although the symptom-complex and major features of the disease have been taught to five or six generations of medical students and have been stressed at medical and surgical meetings for the past two or three decades, the patients continue to come to operation late and the mortality rate continues high. The late great Dr. John A. Witherspoon of this city once remarked that "modern laboratory diagnostic methods were robbing the younger medical men of their five God-given senses." Such is not the case, however, with intestinal obstruction, for laboratory methods in general are not very helpful in arriving at a diagnosis. The diagnosis must, therefore, rest on the old clinical bases of signs and symptoms. And yet the physical signs in the early stages of the disease may not be very constant. Following the initial symptoms of crampy pain and vomiting there may be a period of several hours when nothing occurs to help solve the problem. Muscle spasm and tenderness may be absent; visible peristalsis can be seen only occasionally; distention is usually absent, the temperature and blood count are usually normal.

## SYMPTOMS

*Pain.*—There is usually an onset of cramping, colicky pains. These pains come on abruptly and last but for a few minutes at first, gradually taking on a more intense and continuous character. The pains may travel in a definite direction and usual-

ly are present in the central portion of the abdomen, that is, in the epigastric, umbilical or superpubic regions.

After twelve to twenty-four hours the patient insists that the pain is constant, not coinciding with the waves of peristalsis, which in some cases may be seen or heard at intervals. In obstructions of the large intestine the colicky character of the pain lasts longer than it does in obstruction of the small intestine. *Where strangulation exists*, the infiltrated, distended loop of intestine causes pain that is steady and agonizing in the beginning, rather than colicky, and may be of sufficient severity to bring on a state of collapse. In cases where a chronic obstruction has been gradually converted into an acute obstruction, however, the pain may not be severe; and in certain types of obstructions, particularly those following serious operative procedures or where peritonitis complicates the picture pain may not be a prominent symptom.

If there is a strangulated loop of gut the pain may be referred to the region overlying it. Frequently the patient may be entirely unable to localize his pain, passing his hand over the entire abdomen when asked to show where it is.

*Vomiting.*—Vomiting is the next most prominent and distressing symptom. It follows closely upon the onset of pain. First, the contents of the stomach are ejected, later the upper intestinal bile stained material, and finally the foul-smelling dark brown fecal material from the lower bowel.

*Obstipation.*—Since complete intestinal obstruction necessarily stops the intestinal stream, it might be supposed that cessation of the bowel movement and failure to obtain a movement after appropriate stimulation would be pathognomonic of the disease. The situation, however, is not quite so simple. Obstipation, constipation, and reflex inhibition of intestinal mobility are findings not uncommonly associated with other con-

\*Read before the Tennessee State Medical Association, Nashville, April 9, 10, 11, 1935.



ditions. On the other hand, the contents of the bowel below the obstruction may be passed at the stool or with the enema after the onset of the attack, but following this there is no further passage of either gas or feces, and failure to obtain gas on subsequent enemas in conjunction with abdominal pain and vomiting is a finding that cannot be disregarded.

#### PHYSICAL SIGNS

*Distention.*—The most consistent physical finding is abdominal distention. But since it takes a considerable length of time for fluids and gases to accumulate in sufficient quantity to produce distention, this is not an early symptom unless there has been a preceding chronic or partial obstruction. Distention may not even occur or it may be slight, particularly if the obstruction is in the upper intestinal tract. It is particularly marked in the functional types.

*Muscular Spasm and Tenderness.*—The presence or absence of tenderness depends largely upon the type and duration of the obstruction. In strangulations, tenderness over the involved loop of bowel is frequently found early, particularly, if the loop lies in contact with the abdominal wall. In simple obstruction, tenderness and muscular spasm are often absent in the early cases. Codman, however, considers the doughy feel of increased intra-abdominal pressure obtained on palpation as quite characteristic. In a recent series of 188 cases of intestinal obstruction, strangulated hernias excluded, reported by McIver, abdominal tenderness on palpation was noted in seventy-two, or forty per cent.

*Tumors.*—Occasionally it may be possible by palpation or percussion to detect a distended loop of gut (Wahl's sign), but this is rare. In cases of intussusception it is fairly common to palpate the "sausage-shaped" tumor in the region of the cecum or ascending colon. In a recent series at the Massachusetts General Hospital such a mass was palpated in eight of the eleven cases in children.

*Visible Peristalsis.*—Visible peristalsis can occasionally be made out above the point

of obstruction. In the hand of the writer it has been of little value as a diagnostic sign. In the series of 188 cases, referred to above, visible peristalsis was recorded only twenty-seven times (seventeen per cent). It is most marked in an incomplete type of obstruction. When strangulation is present peristalsis is usually not seen. Auscultation of the abdomen may yield evidence of increased peristaltic activity even when it is not visible. The absence of any sound of peristaltic activity is suggestive that the obstruction may be of the functional type.

*Laboratory Studies.*—As already stated the laboratory furnishes little aid in establishing the diagnosis of acute intestinal obstruction. The blood chemistry findings early in the disease may be completely normal. So much has been written and spoken during the past decade on the low blood chlorides found in intestinal obstruction, that one is likely to get the impression that this is a helpful diagnostic measure. As a matter of fact, such is rarely the case. Since the low blood chlorides are the result of excessive vomiting, this finding is not present at the onset in any type of obstruction, and in the most common fulminating types, in which strangulation is present, low blood chlorides may not be found at any stage of the disease. Furthermore, profuse vomiting occurs in connection with a number of diseases other than intestinal obstruction, and will, if persistent, result in lowered blood chloride. So we may say that however helpful the laboratory findings of lowered blood chlorides may be from point of view of indicating the extent of dehydration, and the need for adequate administration of salt solution, it is only rare that this finding helps to make a diagnosis. The same thing applies even more forcibly to an elevation of the nonprotein nitrogen of the blood. It is true that after the obstruction is well established the N. P. N. is usually elevated, but obviously this finding occurs in many other conditions.

The white blood count is frequently normal except late in the disease or when strangulation is present.

*X-ray.*—Diagnosis by means of X-ray has

a rather limited field. Nevertheless, it may at times be helpful. The diagnosis by X-ray depends upon noting the collection of fluids and gas in the intestines and the characteristic patterns they assume. In obstruction of the small intestine the accumulation of gas may give the outline described by Case as the "herringbone" appearance, or at times the "stepladder" arrangement of the dilated coils. In summarizing the diagnosis of acute intestinal obstruction it may be stated that while various acute conditions arising in the abdominal cavity with sudden onset of intense cramping pain, nausea, and vomiting such as a twisted ovarian cyst, the intense colicky pains accompanying the onset of fulminating appendicitis, perforated peptic ulcer or an acute pancreatitis, usually the localized tenderness and other findings in these conditions will clarify the diagnosis, or if it is not possible to definitely localize the pathology, certainly a diagnosis of a surgical abdomen can be made. And when a reasonable doubt exists, it is better to be on the side of safety. The danger of an exploratory laparotomy is outweighed by the danger of a wrong diagnosis.

#### TREATMENT

Some understanding of the underlying pathology and of chemical changes of intestinal obstruction is essential for an intelligent plan of treatment. Without entering into the discussion as to whether or not a specific toxin is present or whether the picture is one of chemical changes, we wish to point out that the essential pathology is a *blockage of the intestinal tract* producing edema and spasm, followed by distention of the intestinal wall and the consequential vascular changes, producing reverse peristalsis (clinically manifested by vomiting) with the final result of water loss, dechlorination, alkalosis and starvation.

Any plan of treatment to be successful, then, must be along such lines as will (1) remove the obstruction, (2) empty and keep continuously empty the obstructed loop of intestine, thereby preventing structural changes in the intestinal wall, (3) combat

the dechlorination and water loss by replacement therapy.

In other words, the principles governing the treatment of a case of intestinal obstruction consist of relief of the obstruction and correction so far as possible of the systemic effects of the obstruction. The need for relief of the obstruction by prompt surgical interference has long been stressed, but realization of the importance of the treatment of the effect of the obstruction is a comparatively recent advance.

The removal of the obstructing cause or the mechanical relief includes such measures as sections of bands, resections of a portion of the intestine, enterostomies, colostomies, and in cases of strangulation—volvulus, hernia, mesenteric thrombosis, and intussusception—relief of the obstruction and exteriorization of the nonviable tissue rather than immediate resection.

The obstructed loop may, of course, be emptied and kept empty by vomiting, particularly when the obstruction is high in the intestinal tract. In this case treatment need only be directed toward replacement therapy and mechanical relief. Where the obstruction is lower in the intestinal tract and where the loops are not emptied by vomiting, the suction-siphonage apparatus of Wangenstein frequently fulfills our needs beautifully, keeping the intestines deflated and empty, the abdomen soft, and the patient comfortable. High obstructions of the mechanical types and the functional types respond particularly well to this method of treatment. In the functional type it may be all that is required. In low obstructions, an enterostomy accomplishes the same purpose, that is, deflates and decompresses the intestine and prevents structural changes.

The third aim in the treatment, that of combating the dechlorination, water loss and alkalosis can be accomplished by the judicious administration of sodium chloride solutions intravenously, subcutaneously or per rectum. If starvation is a factor, it can be met by the addition of glucose to the saline solution. Hartwell and Hoguet stressed many years ago the necessity of supplying fluids. They used normal salt solution, but failed to recognize the value



of the sodium chloride in it. Haden and Orr in a long series of experiments established the necessity of supplying chlorides in simple obstructions and showed further that none of the other chloride salts could take the place of sodium chloride.

While I agree with the statement generally made that so soon as a diagnosis of obstruction of the mechanical type has been made, the patient should be operated, provided he is operable, and certainly I would not wish to be understood as advocating delayed operations, but I would like to underscore the clause "provided he is operable."

In many of these cases the margin of safety is extremely small and a slight error of judgment throws the balance on the wrong side of the scale.

*Anesthetic.*—The choice of anesthetic to be used must be fitted to the individual case and to the personal equation of the individual surgeon. In a chart showing the anesthetics used at the Massachusetts General Hospital on cases of intestinal obstructions and their respective mortality for the twenty-year period from 1908 to 1928 showed ether to have the lowest mortality and novocaine or local the highest. This no doubt is due to the fact that the cases received early for operation were given ether, whereas, the more desperate cases were given local. Certainly local anesthesia has a place in obstructions, particularly in serious cases where no extensive exploration is contemplated. It produces no depressing effect, either locally or generally on any of the body functions. *Spinal anesthesia* is becoming increasingly popular in obstruction cases. It gives good relaxation and has the further advantages that it stimulates peristalsis and muscular tone of the intestine. It has the disadvantage of interrupting the vasoconstrictor impulses passing by the way of the splanchnic nerves to the blood vessels of the abdominal viscera, often producing considerable fall in blood pressure. In toxic patients this drop in blood pressure may be profound and serious, for considerable strain on splanchnic circulation may already exist, and anything that tends to

abolish the compensatory mechanism may be disastrous.

*Ethylene* has proved a satisfactory anesthetic in many cases. It gives better relaxation than nitrous oxide without the toxic effect of ether. So much for the anesthetics.

#### OPERATIVE PROCEDURE

The operative procedure like the anesthetic must be fitted to the individual case. However, it may be generally stated that the minimum amount of operative manipulation necessary to relieve the obstruction should be done. It is to be ever remembered that a friable, distended, inflamed loop of gut may be as easily punctured as a piece of wet paper, and every care should be used in attempting to free adhesions or to deliver an adherent loop. Every effort must be made to avoid traction as well as evisceration of the distended loop. An aspirating needle attached to a suction may be a necessary means of keeping the viscera within the abdominal walls.

Speed is desirable, but precision and gentleness are essential. In brief, good surgical judgment and surgical technique are the essential factors.

I would like at this time to submit for your consideration the following routine used in the treatment of intestinal obstructions by the Department of General Surgery at the Memphis General Hospital, effective January, 1934:

##### *On Admission.*—

1. History and physical examination.
2. Flat X-ray plate.
3. Blood examination—complete count, chlorides, N. P. N. and carbon dioxide.
4. Clinical diagnosis — probable type — mechanical, adhesions, strangulation, ileus. Call attending surgeon.
5. Institution of suction siphonage (Wangenstein).
6. Administration of morphine (after No. 5).
7. To operating room if operable.

*If Not Operable.*—Institution of continuous intravenous saline-glucose solution (five per cent glucose in normal saline) and to operating room when operable.

*Anesthetic.*—Spinal where no positive contraindication exists.

*Operation.*—

1. Exploratory—determination of type when not detrimental to patient.

2. Enterostomy (Witzel technique) in lower one-third obstructions as near as possible to point of obstruction.

3. Strangulation type—viable—mechanical relief and enterostomy.

Nonviable—mechanical relief and exteriorization and enterostomy.

*Postoperative Care.*—

1. Continuous suction siphonage with daily estimation of water loss.

2. Continuous intravenous saline-glucose solution 3,000 to 5,000 cc. daily, checked by daily plasma chloride determination.

3. Daily urinary volume determination.

4. Morphine qs. q. 4 hours for a period to be determined by the exigencies of the case.

Under this plan of management the mortality rate in the Memphis General Hospital from January, 1934, to January, 1935, compares very favorably with the mortality rate in that same institution in the ten-year period from 1923 to 1933. In a survey of the cases of intestinal obstruction treated at the Memphis General Hospital during that ten-year period it was found that we had treated 581 cases with a mortality of 50.94 per cent. From January, 1934, to January, 1935, fifty-one cases of obstructions were treated by the above plan with a mortality of 31.8 per cent with an average duration of forty-seven hours between the onset of symptoms and instigation of treatment.

While we are not boasting of our mortality rate, readily realizing that the mortality is still too high, higher than one would expect from such a series in private practice, still we are hopeful that our next report will again show a substantial drop in the mortality rate.

#### DISCUSSION

DR. W. D. HAGGARD (Nashville): Mr. President and Gentlemen: This is an unusually complete synopsis of the entire question of intestinal obstruction and comprises practically all of the knowledge in relation to it.

The greatest mistake we physicians make is the administration of purgatives. It is a most unscientific, not to say murderous, practice. It reminds one of a submarine torpedo. Catharsis is characterized by increased pain, increased peristalsis, teasing the bowels almost to bursting, with no benefit. Obstruction is uninfluenced favorably by the administration of purgatives. Enemas are of no avail because as a matter of fact the obstruction is many feet in the small intestine above the obstruction, and if it is in the large intestine it is many inches above it.

I think that a very good rule in order to clinch the diagnosis of intestinal obstruction is this: If the patient has the typical, classical symptoms of cramplike, colicky pain, with nausea and vomiting, increased pulse rate, without temperature, if one then administers at least two turpentine enemas and there is *no relief of symptoms*, even though the bowels move copiously, for practical purposes we should diagnose acute intestinal obstruction.

There are so many forms that I thought perhaps I might bring what few remarks I have to a point by showing a few slides.

An analysis of some that I had the pleasure of hearing discussed at the Surgical Section of the British Medical Association. Three thousand cases occurring in seven London hospitals during four years were analyzed.

In reference to the different causes we find here that gallstones gave the largest per cent of mortality. Out of twenty-eight cases the mortality was fifty per cent. I might modify that to say that in volvulus it was fifty-one per cent. In carcinoma, which is the next great destructive type, they had a mortality of 43.5 per cent out of a total of 358 cases. The adhesions, 342, showed thirty-one per cent; internal strangulation thirty-three per cent, and intussusception with tumor thirty-five per cent, whereas intussusception without tumor, so-called idiopathic, of which there is the largest given group, 613 cases, gives thirty-two per cent. The largest group was intussusception, occurring in the first year of life. They deserve the greatest study.

Sir William Taylor of Dublin was greatly interested because he had an example of this in his own family, and it so stimulated him and his interest that in his discussion before his class and in various groups he had the gratifying experience of eighty-one operations for intussusception with only three deaths—almost ideal.

The average mortality, therefore, as I say, not including hernia, is thirty-two per cent. I think Dr. Kelly is to be congratulated that his mortality in the Memphis General Hospital, and that of his colleagues, is approximately what one finds in these great London hospitals.

If one then considers the herniae separately, we have a gross mortality of nineteen per cent, which is very gratifying. As you know, femoral



hernia is the largest group of herniae, inguinal hernia being second, and umbilical third. The mortality in umbilical is much higher because it is in elderly people, strangulation is slow, it has been in existence a long time, and they are very poor subjects. Out of 1,409 cases the mortality with operation was nineteen per cent.

In intussusception in adults we must always think of the possibility of polypi. A youth who had symptoms of chronic obstruction required a resection of this eight inches for two polypi of small intestine with recovery. The same boy some two years and a half before had a resection for intussusception due to polypi by Dr. Floyd with success.

If we operate for an acute abdomen, and the cause is not obvious, we should satisfy ourselves that there are no polypi causing the intussusception.

Cases of malignancy, causing complete obstruction, may go for a number of days. The lower the obstruction the greater the meteorism; the higher the obstruction the greater the vomiting. One patient had gradually increasing symptoms for almost five days with constant vomiting, considerable pain, distended abdomen, but the general condition not so desperate.

The best operation for obstruction of the large bowels is the so-called blind cecostomy under local anesthesia without making any intra-abdominal examination. It is very hard to withhold our hand, but we must remember that the mortality from operation for obstruction in carcinoma is 43.5 per cent for a simple cecostomy. In our eagerness and zeal to locate the lesion we take hold of the tumor for examination. It is simply loaded with microorganisms—like dynamite—and we squeeze out the microorganisms as you would squeeze water out of a sponge; we wish on the patient an unnecessary and very high mortality, so we must content ourselves with simple cecostomy under local without examination. The patient has had plenty of time to have the diagnosis made by barium enema, and you can always do it afterwards as well, but cecostomy is a lifesaving operation and not an ante-mortem necropsy.

The simplest operation for obstruction of the colon is the Gibson type. A tube three-fourths of an inch, or a large Pezzer catheter, is employed. After relief of obstruction we can subsequently do the secondary operation with much greater success.

DR. FRANKLIN B. BOGART (Chattanooga): I have enjoyed this presentation. What I have to say I want to confine to a few words in emphasizing the usefulness of X-ray examination in these cases.

Of course, as has been mentioned, there are types of chronic obstruction where you can use a barium enema, but in the acute case you can get

a great deal of information from the plain film. It has been known clinically that you can get a lot of information with the distended loops which are shown on a plain film and the fluid levels in those distended loops. It has been shown by Wadenstein in experiments on dogs that these X-ray signs show up a great deal sooner than some of the positive clinical signs of obstruction.

If I recall correctly, at the end of eleven hours, the X-ray signs were obvious and unmistakable, while it required an average of twenty-eight hours for the positive clinical signs of obstruction to show up.

There are two things that need to be accentuated regarding X-ray. One, like all other procedures, it is a confirmative or helping procedure which should be used by one who is familiar with it, and should be used as an aid to the clinician. The other one is that these X-ray examinations, where the condition of the patient will not permit moving the patient without danger or discomfort, can be made in the bed, in the hospital, and in case of necessity a portable machine could be taken to a home, and plates that will show these signs obtained without inconveniencing or doing any damage to the patient.

I want to emphasize that this procedure is a distinct aid in the diagnosis of intestinal obstruction, and, like all other procedures, if we use it, we can get more information out of it the more frequently it is used.

DR. W. A. BRYAN (Nashville): This paper of Dr. Kelly's has shown its excellence by the change in the result they have been able to get in the Memphis hospital where he is working.

There are two points that I want to speak about, and two only. One is that in making an X-ray plate of a patient in whom you expect to find fluid levels, the patient should be in the vertical position, because if he is lying on his back the fluid lies at the bottom, the gas over the top, and you do not see a differentiation in your picture between the gas and the fluid. But if the patient is put in the erect position, then the fluid accumulates at the bottom and the gas on top, and you are looking through on a horizontal level between the gas and the fluid, and you get a picture that shows the stepladder evidence that Dr. Kelly spoke about very clearly. It is really, I can assure you, an important thing in the diagnosis of intestinal obstruction.

The second point is one that Dr. Kelly mentioned, and that is the reduction in chlorides and the increase in the nitrogen in the blood. They go more or less hand in hand. It is perfectly all right, it is perfectly good treatment, and I think necessary treatment in these people who seem to be shocked, who seem to be desperately ill on account of their vomiting, on account of the poisons, such as they may be, that are producing the trouble, that the

salt should be maintained at a proper level, and these are the cases in which you get your best results by giving a hypertonic salt solution, three or four per cent, 500 cc., with or without glucose, intravenously. It often will work wonders with the patient, with his feeling, with his appearance, and with the final outcome of the case.

DR. E. M. HOLDER (Memphis): Scientists tell us that we are merely microbes floating in a rain of cosmic sand. In the fullness of my ignorance I think we are wonderfully and terribly built or made—twenty-eight feet of gut to account for, and with a lot of openings in the abdominal cavity, both hernial and those produced as a result of operations.

About the only reason or excuse that I have for standing before you today is to emphasize the fact that it is not necessary to diagnose definitely what you have in the abdomen. If you have an acute surgical abdomen, what difference does it make whether it is an acute fulminating appendicitis or an acute intestinal obstruction or whether it is a cyst that is twisted on its pedicle? It is surgical, and the life of that patient depends upon your activity.

Zachariah Cope has a preachment which I think is well worth remembering. He lays it down as a law that acute intestinal or abdominal pain occurring in an individual who has previously been fairly well, and which has lasted only six hours, is caused by conditions requiring surgical interference.

The death rate in this country from acute abdominal conditions is increasing, and increasing in appendicitis. In England it is being reduced about fifty per cent in the last decade.

Probably Cope has influenced his fellow practitioners to follow his plan of activity in the beginning. In six hours nearly every life can be saved in the acute abdominal condition, if the abdomen is opened and whatever condition exists is corrected. There might be an exception in acute hemorrhagic pancreatitis, because even then if you go in within six hours you might have a death following. But perforating ulcers anywhere, pyloric, gastric, intestinal tract, acute appendicitis, acute volvulus, intussusception, obstruction from bands and adhesions, acute twisting of pedicles, any of those conditions are amenable to treatment within the first few hours.

I cannot forget that the late-lamented John B. Deaver said on one occasion: "I would rather have a mediocre surgeon operate on me early than a master late, and I would rather see a needless operation than a needless death."

The plan, then, is not to try to differentiate, not to wait until tomorrow, but with the symptoms that Dr. Kelly has outlined to get at them early. I want to pause just for a moment to compliment

his maiden address or essay before the Tennessee State Medical Association; it is a very worthy paper, and one that if followed carefully will save many lives. Those patients he reports in the Memphis General Hospital are all late cases; they do not get to the hospital until they have been sick for twenty-four or forty-eight hours, in all probability, and he has a poor showing, but even then the death rate has been brought down from about fifty-four to something like thirty. So the work is going on, the plan is well worked out. Ninety per cent of these patients are seen by the general practitioner first; only ten per cent by the surgeon.

Take, for instance, the age of the patient. No one expects an intestinal obstruction in a man who is fifty or sixty years old to be anything but a cancer of the sigmoid, whereas in a child under two years you say, "We have here an intussusception." If we have a woman who is in the childbearing period of life we think of a twisted pedicle of an ovarian cyst.

DR. RICHARD A. BARR (Nashville): While the statistics of the Memphis hospital compare very favorably indeed with the statistics of the best hospitals in this country, the mortality probably runs below that of most of the hospitals even in large centers. Gibson published a thousand cases of intestinal obstruction treated by surgery from 1888, I think it was, to 1898, with a mortality of 25 per cent. It is definitely noticeable that our mortality in a general way from the treatment of mechanical obstruction has not improved. While I have not time to go into the details of that, I believe that two things have been responsible to some extent for the fact that our mortality has not improved. One is enterostomy, which at one time was advocated almost as certain cure of practically any condition of obstruction we had. The other is our intense interest, even those of us who know nothing about laboratory work, in the biological chemistry, what the changes are that are going on in the blood, and what the changes are, what poison there is in the intestinal tract that finally produces the death of the patient. I do not know whether we hesitate—we probably do hesitate in the presence of obstruction—while investigating the chemistry of the situation, because many of us feel that even if we do wait we can finally do an enterostomy and everything will be all right.

I do not agree with Dr. Holder. He says I am always wrong. I may still be wrong, but I am inclined to think this time I am right. It takes more of a master surgeon to go inside of an abdomen in the dark (and it is mental darkness, so to speak) and find out what is the matter with the patient than it does to find out from the outside. I do not know anything more difficult or more dangerous than exploration in the presence



of a condition producing the symptoms that might be produced by mechanical obstruction. You do not know where to make your incision unless you have definite ideas of the nature and location of the pathology; when you get inside you do not know which way to go. I believe it is definitely important to make the diagnosis within certain narrow limits before making an abdominal incision.

It is unfortunate that we discuss intestinal obstruction instead of the different conditions that produce obstruction. Obstruction of the lumen of the bowel is merely a symptom of various conditions, some of them more or less innocuous if handled properly without surgery, and some of them deadly without surgery. The pathology is the important point, and while it is particularly important, and particularly difficult, to determine whether or not we have a destructive lesion, we should not dodge this responsibility. I do not believe we should have great difficulty in determining the fact that an abdominal condition is mechanical obstruction, if not from what we find when we examine the patient, at least from the history. In connection with the pathology, it is important to know the location of the obstruction, and I do think that practically always, without any harm, the X-ray can be used with a barium enema to tell whether the obstruction is located in the colon or above it.

There is quite a definite difference between the proper treatment of a colonic obstruction and an obstruction of the small intestine. Obstruction of the colon is in a great majority of instances due to cancer. In the great majority of the instances of acute obstruction in cancer there has been a long history, a comparatively long history, of partial obstruction. The acute obstruction follows the use of a purgative or some indigestible food which brings on a sudden change at the site of obstruction, and that sudden change probably is largely a matter of edema as the result of violent peristaltic effort. If the peristalsis is checked from seventy-two hours to two weeks, the edema subsides, and the condition is no worse than it was at the time of the onset of the acute obstruction.

My work is too limited for me to draw any conclusions from it. It does cover a long period of time. A limited number of cases done over a period of years has more significance than the same number of cases done in a few months. I usually quote my work as being in so many years rather than so many cases. I will say this—that as long as I have been practicing I have never done but one preliminary colostomy or cecostomy for cancer of the colon, and I have never had an acute obstruction from cancer of the colon that has not been relieved, so far as the acute symptoms are concerned, by a free and very free use of morphine. If you relieve the violent peristaltic effort

of the bowel with morphine you will correct the cause of the acute symptoms.

DR. W. M. McCABE (Nashville): Mr. President and Gentlemen: I started to discuss this paper before Dr. Barr discussed it, but he and I disagree so violently on the treatment of intestinal obstruction that I am very glad I waited until he finished his discussion.

Dr. Barr does not believe in enterostomy. I am a thorough believer in enterostomy, and not only that, but I believe in blind enterostomy if that term can be used. In other words, I believe in making an enterostomy in any part of the bowel that presents itself, provided that bowel is a distended bowel.

Dr. Kelly has certainly given us a fine outline by which we might treat intestinal obstruction.

I wish to say that when I went to the City Hospital many years ago the mortality of intestinal obstruction was around sixty per cent, and by using the methods which Dr. Kelly has prescribed, that is, by saline intravenously, by enterostomy, we have reduced the mortality to about thirty per cent. I do not think anybody is ever going to reduce the mortality of intestinal obstruction much below thirty per cent unless the patients are sent into the hospital in better condition than they are being sent into the hospital today. I do not understand why it is that a man will send an appendix into the hospital when it first has symptoms and hold a case of intestinal obstruction out until it is practically moribund.

Dr. Haggard quoted a case which had been operated on twice. I think that same case had actually been operated upon four times. Dr. Sharber and I operated on him twice and did a resection on him twice, and it was a very interesting thing to see at the second operation the results of the first resection. Dr. Sharber performed the operation and you could hardly tell where the first or primary resection had been done.

I believe the higher the obstruction naturally the more trouble you are going to have. A man with a strangulated hernia can go for several days, you operate on him, and he recovers. On the other hand, you can take an intra-abdominal obstruction and he will be moribund in a day or two.

I must congratulate Dr. Kelly on the methods that they use in the General Hospital. I think they are the correct methods, and if he could get his cases early the mortality should not be any higher than in any other abdominal condition.

DR. E. G. KELLY (closing): I just wish to thank the men for their very kind discussion of my paper. I might say by way of apology that I

saw our president meant business in stopping everyone on time, so I eliminated several pages of my paper as well as some lantern slides.

In regard to Dr. Haggard's question of whether or not this mortality list included strangulated hernias, it did not.

Dr. Bryan says he thinks that a larger amount

of salt than is contained in normal saline should be used. We agree with him. In some cases, even as much as one gram per kilo of body weight may be used.

I certainly want to thank all of you for your very kind indulgence, and particularly those who were good enough to discuss the paper.



# THE JOURNAL

OF THE

TENNESSEE STATE MEDICAL ASSOCIATION

Devoted to the Interests of the Medical Profession of Tennessee  
Office of Publication, 510 Doctors Bldg., Nashville, Tenn.

Acceptance for mailing at special rate of postage provided for  
in Section 1103, Act of October 3, 1917,  
authorized July 15, 1932.

H. H. SHOULDERS, M.D., Editor and Secretary

OCTOBER, 1935

## EDITORIAL

### FACING REALITIES

From all indications the time is fast approaching when the medical profession and the general public of the United States are to face the reality of a legislative proposal to the Congress of the United States which embraces some form of state medicine or health insurance.

For some years the subject of state medicine has been agitated. The agitation has originated very largely in social service workers and social groups attached to a few foundations. In so far as we can learn, the taxpayers of the United States have not sponsored this movement. The labor organizations of the United States, who are the alleged beneficiaries under the plans proposed, have not endorsed the movement. The medical profession of the United States certainly has not endorsed the movement.

These so-called social service groups have endorsed the movement and are actively engaged in an effort to sell the idea to the public. One of the attractive features of the program for them is that they hope to land permanent jobs somewhere in the organization setup. Another attractive feature is that they might become a dominant influence over the insured groups and the medical profession, embracing many millions of people. If they achieve their first objective, it naturally follows that they will occupy a dominant political position, influencing some forty millions of persons and controlling untold millions of money and a far-flung organization of people. It would give them the political power to do just about as they might choose.

A great deal of propaganda has been circulated lauding the virtues of health insurance schemes of one sort and another.

So-called *surreys* have been made by members of social service groups for the purpose of obtaining information on which to base further propaganda activities.

It is reported that "sampling investigations" are being carried on at the present time very largely by lay groups concerning purely medical matters. They are carried on as federal projects, and the federal taxpayers, of course, supply the funds.

According to the statement by the legislative committee, there is to be a survey also by idle white collar workers. No one at present knows exactly what the surveyors are expected to look for nor their ability to recognize the things they are looking for.

Another feature entering into this consideration is the fact that a politician owes his power very largely to patronage. When a politician is offered an opportunity to vote for a measure which will enormously increase *his patronage*, and at the same time do it in the name of *social welfare*, there has been placed before him a very tempting morsel. Any opposition to such a proposal, according to the proponents, is based on an antisocial attitude and an antagonism to the welfare of humanity.

Therefore, we say that we are well beyond the crossroads on this issue. We do not face abstract questions now. We face realities. It is high time that members of the medical profession inform members of Congress on this subject. The most influential informants of a congressman are his constituents, and we must not forget that the social groups in his constituency are active.

Our legislative committee in Washington and our legislative committee in the state, however active, will fail unless the local members of the profession inform their respective congressmen and senators.

Some definite legislative proposals likely will be presented the next Congress which convenes in January, 1936.

## THE ACTIVITIES OF THE LEGISLATIVE COMMITTEE OF THE AMERICAN MEDICAL ASSOCIATION

The Legislative Committee of the American Medical Association is composed of outstanding men in the profession. This committee is carrying heavy responsibilities at this time. The matter of keeping informed on developments is in itself a time-consuming task, to say nothing of the actions that are required.

The following communication was received from the committee some days ago. It is so completely filled with information of interest to the profession that permission was obtained to reproduce it in the JOURNAL.

*To Presidents and Secretaries of State Associations and Delegates to the American Medical Association:*

Everybody's doing it!

Headlines — "UNCLE SAM TAKES DOORBELL CENSUS."—(By Associated Press.)—Washington, August 28.—Uncle Sam will start ringing 750,000 doorbells on October 15 to ask the family, "How's your health?" As announced by the United States Public Health Service, in July, this work is set forth to be a survey of health conditions with special reference to chronic diseases and physical impairments. Obviously, any such inquiry should take account of mental states which result from unemployment and unhappy economic conditions. The survey will be conducted by 6,000 white collar workers selected from relief rolls. The funds, \$3,450,000, are to come from federal employment allotments. It is admitted that information thus obtained in widely separated cities will exceed in scope anything heretofore attempted, and, if conducted by trained personnel adequately supervised by medical men, might yield information from which certain conclusions may be drawn. The committee has not been informed as to whether the United States Public Health Service will have sufficient personnel to adequately supervise this work, or if it will ask the cooperation of local medical societies in directing the study. If given over to lay groups without medical direction, the

influence of possible personal bias, and the use of investigators whose principal qualification may be that of being unemployed, would materially color the data. Lack of medical experience, and the acceptance of statements from individuals interviewed, without an opportunity to check their validity from other sources, would make the results of little value. Instead of helpful information, the profession may again be forced to combat a fog of misinformation and harmful propaganda arising therefrom.

Headlines — "INSURANCE FOR HEALTH STUDIED—NEXT CONGRESS MAY GET FEDERAL PLAN."—(Copyright, 1935, by United Press.)—Washington, August 29.—A broad program of health insurance to round out the administration's sweeping social security system is being studied with a view to congressional action next session.

The social security act, designed to safeguard 25,000,000 working Americans against old age destitution and unemployment, failed to make provision for economic protection against sickness.

One reason was the controversial character of proposed plans by which the ill worker could get medical treatment on a low cost federally aided basis in return for a yearly contribution from his wages. Medical societies in many instances have charged it would "regiment" the profession.

A more detailed study of the problem is now being made by administration figures. Upon what basis this "study of the problem" is being made was not stated.

Federal agencies are carrying on "sampling investigations" in various states, and with state authorities are preparing for further activities in compliance with the National Security Act. National lay groups, interested in the control of certain diseases, are said to be planning greater activity on the basis of information to be obtained. Local lay groups have been stimulated to greater activity along health lines, apparently for the purpose of insuring participation by the states to the maximum of federal allotment.

A recent bulletin from the Medical Society of the State of Pennsylvania to its



component societies, received from Dr. Walter F. Donaldson, secretary, carried information concerning a proposed WPA project, reported by Dr. Paul Correll. The plan was said to have been proffered to nonprofessional social agencies of Northampton County. The purpose described was "a country-wide survey of the physically handicapped adults and children." The outlines of the plan enclosed indicate that a survey such as proposed, to be of any value, should only be conducted by trained workers under the most careful supervision of medical men. Information as to other similar projects has reached the committee, but, as apparently all are not emanating from the same sources and as the same plans are not offered everywhere, this matter will require constant watchfulness on the part of state and county societies. It will be necessary to see that possible propaganda making material from inadequately or unfairly conducted surveys may be met by an immediate study of the conduct of the survey and sources of outstanding or misleading findings. Any pertinent findings should be adequately investigated and the results made a matter of record and filed with the society so that unfounded statements can be controverted. The legislative committee would appreciate any information which might be helpful in its activities.

#### LINE OF ATTACK

In so far as information so obtained pertains to medical care, it will no doubt be discussed from the basis of availability, adequacy, and quality of the services provided. Lay societies, organized for the control of certain diseases, having as one of the objectives early diagnosis and treatment, will build upon any suggestion that average medical examinations are not sufficient to make reasonably accurate diagnoses possible or that health examinations are discouraged or indifferently or inadequately done. Many believe that an intensive public campaign, stressing frequent examination to assure early diagnosis of such diseases as cancer and cardiovascular conditions, now the greatest causes of death, would reduce the mortality in these dis-

eases to a degree comparable to that attained in tuberculosis. Free diagnostic clinics have been suggested. It is held that tuberculosis clinics were made necessary because of the failure of general practitioners to give sufficient attention to the early recognition of the varying, and often indefinite, symptoms characteristic of early tuberculosis. Well-baby clinics are said by lay groups to have been necessary because of unwillingness of the general practitioner to equip his office with baby scales and enter seriously into the consideration of feeding and other routine matters of well-baby observation. Leaders in these movements have, however, recognized that the public will be better served by many well-trained and careful general practitioners, by whom patients will be contacted in early stages of disease, than by a few less readily accessible specialists in public diagnostic agencies. Some such organizations have, for that reason, conducted all their educational work on a "see-your-doctor" basis.

Individuals who have not had any illness and have not had any health examination are included, in some statistics advanced, among those reported as not having had needed medical care. Although need of adequate health service to prevent illness was advanced as a basis upon which sickness insurance was established in European countries, morbidity and mortality statistics and incidence of preventable disease do not reflect any superior state of public health as compared to America. There is much to suggest that many of those who did not have any medical care did not wish it, and that the major portion of the remaining number did not believe it necessary. It is not proven that any large portion of this group were unable to obtain such service because of inability to pay. Where such periodic health examinations are advanced as an argument for new systems, it would be well for the medical profession to emphasize to the public that not only has it advised periodic health examinations, but that it is ready to make such examinations as public welfare requires,

and that no need exists for the establishment of a public agency for that purpose. Personal interest is necessary in periodic health examinations if the patient is to have guidance in his intimate problems. Mass examinations lack this, and possess the potentialities of enlarged objectionable sickness insurance machinery.

#### SELF-SURVEY

It must be recognized that medical service will, during the coming winter, be surveyed from the most critical and in some instances unsympathetic viewpoint. Statistical and quasi-statistical information will be forthcoming. It would, therefore, seem wise that the respective state associations give attention to the status of medical service and the facilities and quality of medical care offered in order that ill-judged conclusions may be successfully controverted. Programs for the coming winter are being prepared in local societies and at least one state is already giving consideration to a state-wide program emphasizing special investigation and concentrated study of the problem of early diagnosis and early treatment of some of the principal causes of death.

The weakest medical units, be they individuals or organizations, may determine the pattern of reaction entertained by the lay public toward physicians. It will be said of them that they are stubborn and selfish—past years of unselfish service will meet that accusation. The profession may well be proud of its background of brilliant achievement, and there must be no basis developed, upon which it may be charged that the level of medical service offered to the average man is below desirable standards by reason of negligence or incompetence of medical men.

E. H. CARY, M.D., *Chairman.*

C. B. WRIGHT, M.D.

F. S. CROCKETT, M.D.

R. L. SENSENICH, M.D.

*Committee on Legislative Activities of the American Medical Association.*

### STANDING COMMITTEES

#### COMMITTEE ON SCIENTIFIC WORK

H. H. Shoulders, Chairman, Nashville  
A. F. Cooper, Memphis  
W. J. Sheridan, Chattanooga  
Jesse C. Hill, Knoxville

#### COMMITTEE ON PUBLIC POLICY AND LEGISLATION

Battle Malone, Memphis (five years)  
L. W. Edwards, Chairman, Nashville (four years)  
Tom Barry, Knoxville (three years)  
T. R. Ray, Shelbyville (two years)  
Robert Sullivan, Nashville (one year)

#### COMMITTEE ON EDUCATION

O. S. Warr, Chairman, Memphis (three years)  
R. B. Wood, Knoxville (three years)  
W. G. Kennon, Nashville (two years)  
J. Marsh Frere, Chattanooga (two years)  
W. O. Baird, Henderson (one year)  
J. M. Lee, Nashville (one year)

#### LIAISON COMMITTEE

Hiram A. Laws, Chattanooga (four years)  
Tom Mitchell, Memphis (three years)  
J. L. Raulston, Knoxville (two years)  
W. C. Dixon, Chairman, Nashville (one year)  
W. P. Wood, Knoxville (five years)

#### STATE TUBERCULOSIS HOSPITAL COMMISSION

W. S. Rude, Chairman, Ridgeway  
O. N. Bryan, Nashville  
C. M. Oberschmidt, Memphis  
J. L. Hamilton, Chattanooga

#### HOSPITAL COMMITTEE

D. R. Pickens, Chairman, Nashville  
E. H. Baird, Dyersburg  
B. L. Jacobs, Chattanooga  
Kyle Copenhaver, Knoxville  
J. A. McIntosh, Memphis  
Lee Gibson, Johnson City

#### ADVISORY COMMITTEE TO THE WOMAN'S AUXILIARY

Oliver W. Hill, Knoxville  
Matt Murfree, Murfreesboro  
W. W. Campbell, Memphis



## LIST OF OFFICERS OF THE TENNESSEE STATE MEDICAL ASSOCIATION

President—Dr. John B. Steele, Chattanooga.  
 Vice President for East Tennessee—Dr. C. R. Thomas, Chattanooga.  
 Vice President for Middle Tennessee—Dr. J. W. Wilkes, Columbia.  
 Vice President for West Tennessee—Dr. N. S. Walker, Dyersburg.  
 Secretary—Editor—Dr. H. H. Shoulders.  
 Assistant Secretary—Editor—Dr. W. M. Hardy.

## TRUSTEES

Chairman and Treasurer—Dr. C. M. Hamilton, Doctors Building, Nashville.  
 Dr. Franklin B. Bogart, Medical Arts Building, Chattanooga.  
 Dr. W. L. Williamson, 915 Madison Avenue, Memphis.  
 Dr. J. O. Manier, Doctors Building, Nashville.  
 Dr. E. R. Zemp, Walnut Street, Knoxville.

## COUNCILORS

First District—Dr. L. E. Dyer, Greeneville.  
 Second District—Dr. S. R. Miller, Knoxville.

Third District—Dr. J. H. Revington, Chattanooga.  
 Fourth District—Dr. J. T. Moore, Algood.  
 Fifth District—Dr. John W. Sutton, Petersburg.  
 Sixth District—Dr. L. W. Edwards, Nashville.  
 Seventh District—Dr. C. D. Walton, Mt. Pleasant.  
 Eighth District—Dr. J. R. Thompson, Jackson.  
 Ninth District—Dr. E. H. Baird, Dyersburg.  
 Tenth District—Dr. W. B. Burns, Memphis.

Speaker of the House of Delegates—Dr. E. R. Zemp, Knoxville.

## Delegates to the American Medical Association—

Dr. E. G. Wood, Knoxville; East Tennessee.  
 Dr. H. H. Shoulders, Nashville; Middle Tennessee.  
 Dr. H. B. Everett, Memphis; West Tennessee.

## Alternates—

Dr. E. T. Newell, Chattanooga; East Tennessee.  
 Dr. J. O. Manier, Nashville; Middle Tennessee.  
 Dr. E. C. Ellett, Memphis; West Tennessee.

## OFFICERS OF COUNTY MEDICAL SOCIETIES FOR THE YEAR 1935

| COUNTY                                    | PRESIDENT                             | VICE PRESIDENT                         | SECRETARY-TREASURER              |
|-------------------------------------------|---------------------------------------|----------------------------------------|----------------------------------|
| Anderson                                  | Thomas Jennings, Clinton              | Edward Dickson, Coal Creek             | J. S. Hall, Clinton              |
| Bedford                                   | W. T. Sharpe, Farmington              | Alfred Farrar, Shelbyville             | W. H. Avery, Shelbyville         |
| Blount                                    | C. C. Vinsant, Maryville              | L. C. Olin, Maryville                  | H. A. Calloway, Maryville        |
| Bradley                                   | Vance H. Bell, Cleveland              | D. N. Arnold, Cleveland                | Wm. A. Garrett, Cleveland        |
| Campbell                                  | A. L. Lawson, Elk Valley              | G. M. Rogers, LaFollette               | F. J. Slemmons, Jellico          |
| Carroll                                   | E. W. Hillsman                        | S. W. Huffman                          | J. H. Williams                   |
| Carter                                    | E. T. Pearson, Elizabethton           | J. B. Shoun, Elizabethton              | E. L. Cadell, Elizabethton       |
| Chester, Henderson, and Decatur           | C. H. Johnson, Lexington              | J. L. McMillen, Decaturville           | L. C. Smith, Henderson           |
| Coke                                      | J. A. P. Shields, Hartford            |                                        | J. E. Hampton, Newport           |
| Cumberland                                | E. W. Mitchell, Crossville            |                                        | V. L. Lewis, Crossville          |
| Davidson                                  | W. G. Kennon, Nashville               | H. S. Shoulders, Nashville             | J. P. Gilbert, Nashville         |
| Dickson                                   | L. F. Loggins, Charlotte              |                                        | R. P. Beasley, Dickson           |
| Dyer, Lake, and Crockett                  | E. H. Baird, Dyersburg                | P. E. Miller, Tigrett (Dyer)           | C. L. Denton, Dyersburg          |
| Fayette and Hardeman                      | John Morris, Somerville               | R. C. Newkirk, Tiptonville (Lake)      |                                  |
| Fentress                                  | C. A. Collins, Wilder                 | J. O. McKinney, Friendship (Crockett)  | A. Richards, Bolivar             |
| Franklin                                  | W. F. Smith, Decherd                  | A. H. Crouch, Forbus                   | J. P. Sloan, Jamestown           |
| Gibson                                    | P. D. Jones, Milan                    | A. P. Smith, Winchester                | John P. Grisard, Winchester      |
| Giles                                     | Joe B. Wright, Lynnville              | L. H. Montgomery, Trenton              | F. L. Roberts, Trenton           |
| Greene                                    | L. E. Dyer, Greeneville               | R. E. Warren, Pulaski                  | T. F. Booth, Pulaski             |
| Grundy                                    | D. H. Bryan, Monteagle                | M. A. Blanton, Mosheim                 | C. P. Fox, Jr., Greeneville      |
| Hamblen                                   | P. L. Henderson, Morristown           | O. H. Clements, Palmer                 | T. F. Taylor, Monteagle          |
| Hamilton                                  | James L. Bibb, Chattanooga            | P. L. Brock, Morristown                | J. F. Campbell, Morristown       |
| Hardin, Lawrence, Lewis, Perry, and Wayne | G. N. Springer, Hohenwald             | D. N. Williams, Chattanooga            | W. J. Sheridan, Chattanooga      |
| Haywood                                   | W. D. Poston, Brownsville             | V. H. Crowder, Lawrenceburg (Lawrence) | C. C. Stockard, Lawrenceburg     |
| Henry                                     | A. F. Paschall, Puryear               | Paul Wylie, Hohenwald (Lewis)          |                                  |
| Hickman                                   | L. F. Pritchard, Only                 | W. E. Turner, Lobelville (Perry)       |                                  |
| Humphreys                                 |                                       | J. T. Keeton, Clifton (Wayne)          |                                  |
| Jackson                                   | J. D. Quarles, Whitleyville           | Otis W. Whitlow, Savannah (Hardin)     |                                  |
| Knox                                      | Eugene Abercrombie, Knoxville         | A. H. Sorrelle, Brownsville            | Roy M. Lanier, Brownsville       |
| Lauderdale                                | J. L. Dunnivant, Ripley               | Elroy Scruggs, Paris                   | R. Graham Fish, Paris            |
| Lincoln                                   | J. D. Bryant, Fayetteville            |                                        | W. K. Edwards, Centerville       |
| Macon                                     | D. D. Howser, Lafayette               | R. C. Gaw, Gainesboro                  | W. W. Slayden, Waverly           |
| Madison                                   | F. C. James, Gadsden                  | W. F. Christenberry, Knoxville         | F. B. Clark, Gainesboro          |
| Maury                                     | E. M. Ragsdale, Columbia              | T. E. Miller, Ripley                   | Jesse C. Hill, Knoxville         |
| McMinn                                    | R. W. Eggerson, Athens                | H. Knox Alexander, Fayetteville        | J. R. Lewis, Ripley              |
| McNairy                                   | John R. Smith, Selmer                 | P. East, Lafayette                     | J. M. McWilliams, Fayetteville   |
| Monroe                                    | T. M. Roberts, Sweetwater             | H. E. Whitlock, Bemis                  | J. Y. Freeman, Lafayette         |
| Montgomery                                | M. L. Hughes, Clarksville             | D. B. Andrews, Columbia                | S. M. Herron, Jackson            |
| Obion                                     | W. B. Harrison, Union City            | S. B. McClary, Sr., Etowah             | C. D. Walton, Mt. Pleasant       |
| Overton                                   |                                       | G. B. Curry, Selmer                    | L. A. Brendle, Englewood         |
| Polk                                      | H. P. Hyde, Copperhill                | J. A. Hardin, Sweetwater               | H. C. Sanders, Selmer            |
| Putnam                                    | Z. L. Shipley, Cookeville             | F. J. Malone, Clarksville              | W. J. Cameron, Sweetwater        |
| Roane                                     | L. A. Killefer, Harriman              | Har Glover, Union City                 | Paul E. Wilson, Clarksville      |
| Robertson                                 | W. Foster Fyke, Springfield           |                                        | Frank B. Kimzey, Union City      |
| Rutherford                                | J. D. Hall, Readyville                |                                        | A. B. Qualls, Livingston         |
| Scott                                     |                                       | W. Y. Gilliam, Copperhill              | F. O. Geisler, Isabella          |
| Sevier                                    | O. H. Yarberry, Sevierville           | J. Fred Terry, Cookeville              | Thurman Shipley, Cookeville      |
| Shelby                                    | Jas. B. Stanford, Memphis             | R. F. Register, Rockwood               | W. W. Hill, Harriman             |
| Smith                                     | R. E. Mason, Memphis, President-Elect |                                        | W. S. Rude, Ridgeway             |
| Sullivan and Johnson                      | R. E. Key, Monrovia                   | B. W. Rawlins, Murfreesboro            | J. A. Scott, Murfreesboro        |
| Sumner                                    | W. R. Rogers, Bristol, Va.            |                                        | D. M. Woodward, Winona           |
| Tipton                                    |                                       | Rhea E. Garrett, Dixon Springs         | C. P. Wilson, Sevierville        |
| Warren                                    | J. J. Gwin, Hartsville                | L. C. Cox, Kingsport (Sullivan)        | A. F. Cooper, Memphis, Secretary |
| Washington                                | A. J. Butler, Covington               | J. C. Hutchenon, Crandall (Johnson)    | J. J. Hobson, Memphis, Treasurer |
| Weakley                                   | E. L. Mooneyham, Rock Island          |                                        | Thayer S. Wilson, Gordonsville   |
| White                                     | J. W. Wallace, Johnson City           | R. N. Buchanan, Hendersonville         | Arthur Hooks, Bristol, Tenn.     |
| Williamson                                | K. W. Brandon, Martin                 | J. J. Fleming, Atoka                   |                                  |
| Wilson                                    | S. E. Gaines, Sparta                  | Jas. Bales, McMinnville                | Homer Reese, Gallatin            |
|                                           | T. C. Rice, Franklin                  | E. T. Braden, Johnson City             | H. C. Currie, Covington          |
|                                           | J. L. Ames, Lebanon                   | H. G. Edmonson, Martin                 | John S. Harris, McMinnville      |
|                                           |                                       | Vernon Hutton, Ravenscroft             | Carroll H. Long, Johnson City    |
|                                           |                                       | R. H. Hutchison, Franklin              | P. W. Wilson, Dresden            |
|                                           |                                       | C. C. Young, Alexandria                | A. F. Richards, Sparta           |
|                                           |                                       |                                        | K. S. Howlett, Sr., Franklin     |
|                                           |                                       |                                        | S. B. McFarland, Lebanon         |

## D E A T H S

Dr. R. C. Bunting, Memphis; University of Maryland, School of Medicine, Baltimore. 1899; aged 59; died September 30, after an illness of several months.

## R E S O L U T I O N S

DR. HARRY C. BOYD, Waynesboro, Tenn.

With emotions of deepest regret, but humbly bowing to the will of Almighty God, the Five-Counties Medical Society, by these resolutions, mourn the death of our esteemed member and coworker, Dr. Harry C. Boyd, of Waynesboro, Tennessee, who died at his home in that town, August 9, 1935.

Dr. Harry Clay Boyd was born at Bellefonte Furnace, Boyd County, Kentucky, May 6, 1865. He was four years of age when his parents moved to old Wayne Furnace, Tennessee. He attended the Medical Department of the University of Louisville, Kentucky, and began the practice of his profession at Waynesboro in 1887, and lived there until his death. On November 30, 1887, Dr. Boyd married Miss Sallie Craig. To this union were born six children, all of whom survive.

Dr. Boyd became ill in the early part of the year 1934. Remained in the Protestant Hospital at Nashville until August of the same year and came back home. His long illness was attended with great suffering which was borne with wonderful fortitude.

In the death of Dr. Boyd, this society will miss an earnest and efficient worker and a genial and friendly personality. His ready smile and his warm handclasp and his willingness to help at any and all times were the characteristics which commended him to a large clientele, as well as to a large circle of friends. His attainments were recognized as superior, and in his passing a vacancy is created that will not soon be filled.

Dr. Boyd was a devoted and loving father, husband, and friend, possessing Christian virtues that very few have. It can be truly

said of him that he loved people and gave of his all to help humanity. Few persons have commanded more respect and love than did Dr. Boyd. His death removes from our society a valued member and from his community a beloved citizen. We, who knew him so well, have every reason to mourn the loss of a friend and fellow worker. We will greatly miss his valued counsel and assistance.

Be It Resolved, Therefore. First: That we extend to the bereaved wife, children, brother, and a mighty host of friends our heartfelt sympathy in their great bereavement. Second: That these resolutions be spread upon the minute book of this society; that a copy of same be sent to the family; and that copies be sent to THE JOURNAL OF THE TENNESSEE MEDICAL ASSOCIATION and to the *Wayne Countian* for publication.

Respectfully submitted,

DR. T. J. STOCKARD,

DR. J. W. DANLEY,

DR. O. H. WILLIAMS,

*Committee.*

## WOMAN'S AUXILIARY

President-----Mrs. R. G. Reaves  
Knoxville

President-Elect-----Mrs. Theodore Morford  
Nashville

Press and Publicity-----Mrs. W. O. Floyd  
Nashville

The following message from our new president inspires us to loyal and efficient service during the year ahead. We are glad to have such opportunity to become acquainted with her hopes and plans for the auxiliary so that we may give her full cooperation.

### MESSAGE

*Dear Auxiliary Members:*

As I enter my eighth year as an auxiliary member, I am thrilled and filled with pride at the progress we have made. We have indeed come a long journey since that day in April, 1928, when organizing the state was such a new idea the nominating committee almost despaired of finding a presi-



dent. It is a privilege to have been a member of this group of pioneers in auxiliary work. I believe the auxiliary is destined to play a more and more important part in service to the medical profession, therefore it behooves us to undergo a thorough introspective survey to see if our knowledge equals the occasion.

In every city in which Tennessee has an auxiliary—and in many in which it does not—are clubs undertaking extensive health programs. Many of our auxiliary members belong to these clubs. A tactful word at the right moment can often mean the difference in a program carried on in a manner consistent with the ideals and aims of the medical profession or not.

Again the American Medical Association asks us to promote *Hygeia*, the only magazine published by the association, advising and informing the laity in nontechnical terms. This year our national president and *Hygeia* chairmen are asking each member to be responsible for one new subscription. A small task for one, but if each of us does her bit, totaled it means 14,261.

The American Medical Association asks our cooperation in helping build listening audiences for its radio program (see program for first month elsewhere on this page) beginning the first Tuesday in October. Will you have this announced in clubs interested in health education? Be sure to listen in yourself.

The auxiliary to the Southern Medical Association meets in St. Louis on November 20 and 21. Mrs. Hill will be installed president and I hope many of you will be there, both to support Mrs. Hill and to receive the inspiration of meeting with such an enthusiastic group of auxiliary-minded women. The Southern meetings are outstanding for their spirit of hospitality and lovely entertainments. Mrs. Hill assures me those attending always have a good time.

We have just seven months until the annual meeting. I feel that the eyes of all auxiliaries are upon us. With one of our number, Mrs. Herbert, the national president, and the other, Mrs. Hill, becoming president of the Southern, much will be expected of us. As a state, I believe we

should endeavor to make a slow but steady growth, trying to organize new auxiliaries only as we can sustain interest and arouse individual responsibility. After all, it is the individual effort in the local unit that makes the state organization possible. Let each of us assume her share of that responsibility.

MRS. R. G. REAVES.

#### AMERICAN MEDICAL ASSOCIATION RADIO BROADCASTS

The October schedule is as follows:

October 1—"Burns," Morris Fishbein, M.D.

October 8—"Hazards from Foreign Shores," W. W. Bauer, M.D.

October 15—"Unconsciousness," Morris Fishbein, M.D.

October 22—"Asphyxiation," W. W. Bauer, M.D.

October 29—To be announced.

This broadcast will be over the Blue Network of the National Broadcasting Company at 5 P.M., eastern standard time; 4 o'clock, central standard time; 3 o'clock, mountain time, October 1, and each Tuesday thereafter.

### NEWS NOTES AND COMMENTS

A recent newspaper report states that Newport is to have a city hospital built by WPA funds. The Cocke County Medical Society will operate the hospital.

The Wiggins Clinic at Paris has been bought by Drs. W. Gardner Rhea, Geo. Boone, and Ike Jones. The building will be enlarged and more equipment added. The name will be changed to the "Nobles Memorial Hospital."

The trustees of the Lilly Heard Anderson Lectureship in Pediatrics announce that Dr. Thomas M. Rivers will deliver the annual lecture in Atlanta, at the Academy of Medicine, Thursday, November 14, 1935, at 8 P.M. Dr. Rivers' subject will be, "Virus Diseases of the Central Nervous System." His talk will include: Anterior poliomye-

litis, its treatment and prophylaxis; virus encephalitides; and the new virus meningitis that is attracting attention.

Dr. Rivers, a native Georgian, is in charge of this field of research at the Hospital of the Rockefeller Institute of Medical Research in New York City. He is a recognized authority in his line of endeavor.

The medical profession is cordially invited to attend.

---

### IT'S JUST AS WELL HE DIDN'T GO SCIENTIFIC

(An Associated Press Dispatch)

Kansas City, May 3.—Transcript of proceedings in a damage suit today:

Lawyer: "Doctor, in popular language, please tell the jury the cause of the patient's death."

Doctor: "In plain language, he died of an oedema of the brain that followed a cerebral thrombosis or possibly embolism that followed. In turn, arteriosclerosis combined with the effects of gangrenous cystitis—"

A Juror: "Well, I'll be damned!"

The Judge: "Ordinarily I would fine a juror for saying anything like that, but I can't in this instance because the court was thinking the same thing."

## MEDICAL SOCIETIES

### *Davidson County:*

September 10—"The Evolution of Medicine; Present Requirements; Ideals; Is State Medicine Coming?" Dr. John J. Mulowney. Discussion opened by Dr. H. H. Shoulders.

September 17—"Summary of the Goiter Problem," by Dr. W. D. Haggard. Discussion opened by Drs. N. S. Shofner and L. W. Edwards.

September 24—"Tumors of the Bladder," by Dr. Henry L. Douglass. Discussion opened by Dr. J. C. Pennington. Case report: "Carcinoma of the Sigmoid," by Drs. Haggard and Floyd.

October 1—"Zinc Ionization in Treatment of Hay Fever and Allied Conditions,"

by Dr. W. W. Wilkerson. Discussion opened by Drs. J. L. Bryan and C. S. Thomas.

October 8—"Hyperparathyroidism," by Dr. Samuel S. Riven. Discussion opened by Dr. Wm. R. Cate.

---

### *Dyer, Lake, and Crockett Counties:*

The Dyer, Lake, and Crockett County Medical Society met in regular session October 2, 1935. The recent advance in prices charged by nurses for graduate nursing was discussed at length with the consensus of opinion being that the raise in price was unjustifiable. In accordance with recent legislation nominations were made to be submitted to the county courts of physicians to serve for a period of four years as a component part of county boards of health.

#### SCIENTIFIC PROGRAM

1. "Fever—Its Significance and Care in Infancy and Childhood," Dr. J. J. Hobson, Memphis.

2. "Bronchial Asthma," Dr. W. C. Chaney, Memphis.

3. "Recent Advances in Chest Surgery," Dr. Duane Carr, Memphis.

The meeting was very instructive and thirty-three physicians were in attendance.

C. L. DENTON, *Secretary*.

---

### *Fayette-Hardeman Counties:*

On September 27 the regular meeting was held at the Western Hospital, Bolivar. A good attendance enjoyed the program.

---

### *Giles County:*

Dr. W. G. Kennon of Nashville was the guest speaker at the regular meeting on September 26. Dr. Kennon's subject was "Plan for Securing Universal Immunization Against Smallpox, Typhoid and Diphtheria."

---

### *Hamilton County:*

To the annual clinic of the Chattanooga and Hamilton County Medical Society at the Read House, October 3, Dr. J. B. McElroy, head of the Medical Department of the University of Tennessee, and Dr. John



Musser, Tulane professor and ex-president of the American College of Physicians, were invited as principal speakers.

Doctors from surrounding communities of Tennessee, Georgia, and Alabama were invited to attend the one-day conference, which had as its main feature scientific exhibits at the Chattanooga hospitals.

Dr. Franklin Bogart arranged the exhibit for Pine Breeze and Drs. Robert Ball and Marsh Frere were in charge for Erlanger and Newell, respectively. Dr. S. S. Marchbanks prepared a skin and cancer exhibit also.

The sessions, with the hospital exhibits, were followed by a banquet at the Read House.

---

*Hardin, Lawrence, Lewis, Perry, and Wayne Counties:*

The Five-County Medical Society met as guests of the Hickman County Medical Society at Centerville, September 24. A good attendance was present and a profitable meet was enjoyed by all. The program was as follows:

"Toxemia of Pregnancy," by Dr. W. B. Anderson, Nashville. Discussion opened by Dr. J. S. Beasley.

"Intestinal Obstruction—Its Treatment and Management," by Dr. Richard Barr, Nashville. Discussion opened by Dr. W. K. Edwards.

A discussion of "State Medicine," by Dr. H. H. Shoulders, Nashville.

"Some Symptom Complexes and Their Meaning Reference to Hypoglycemia, Diverticulitis, Subarachnoid Hemorrhage, and the Nerve Features of Pernicious Anemia," by Dr. W. H. Witt, Nashville. Discussion opened by Dr. C. V. Stephenson.

---

*Knox County:*

September 24—"Diphtheria," by Dr. F. O. Pearson. Discussed by Drs. Oliver W. Hill and C. J. Carmichael.

"Practice of Medicine in British Isles," by Dr. Joe Pennybacker.

*McMinn County:*

On September 12, Dr. John Haskins of Chattanooga and Dr. Boyd McClary of Etowah addressed the regular monthly meeting. Dr. Haskins' subject was "Colles' Fracture and Pott's Fracture," and Dr. McClary spoke on "Malaria."

Four members were nominated, two of whom will be elected to serve on the County Board of Health.

Those present at the meeting were: Drs. John Haskins, R. W. Epperson, Joseph McGahhey, S. B. McClary, Jr., J. R. Nankivell, D. P. Brendle, R. A. Brock, W. R. Arrants, John H. Lillard, and W. J. Abel.

---

*Roane County:*

The Roane County Medical Society held its regular monthly meeting in the Harri-man city hall, September 19.

The following doctors were present: Drs. Roberts, Zirkle, and Fly of Kingston, Dr. Phillips of Rockwood, Drs. Neergaard, Bowman, Killefer, and Hill of Harriman. John Zirkle, medical student, was a visitor.

Several interesting and unusual cases were reported by Drs. Zirkle, Roberts, and Phillips.

Dr. Phillips being the essayist for the meeting made a talk on the subject, "The Significance of Pain in the Region of the Bladder in Females." The address and discussion following were very interesting.

---

*Smith County:*

The regular monthly meeting was held on September 6 in Dr. R. E. Key's office. The principal topic was intestinal troubles, with Dr. Key leading the discussion.

Four doctors were named, two of whom must be elected by the county court to serve on the County Board of Health.

---

*Warren County:*

Dr. Owsley Manier of Nashville was guest speaker at the September meeting. Dr. Manier spoke on "Infantile Paralysis."

---

*Washington County:*

On October 3 the following program was scheduled:

"Neuroses and Psychoneuroses," by Dr. W. M. Bevis. Discussion by Drs. Lee Gibson and G. C. Horne.

"Deafness and Its Etiology," by Dr. N. E. Hartsook. Discussion opened by Dr. E. A. Lodge.

#### *Williamson County:*

Speakers at the monthly meeting of the Williamson County Medical Society were Dr. Frank H. Luton of Nashville and Dr. W. F. Roth, Jr., director of the new Rockefeller health study in the county. Dr. Luton spoke on the history of the child guidance movement in the United States. Dr. Roth spoke on types of cases where modern child guidance measures can aid the doctor, the teacher or others dealing with children. Dr. Roth presented plans for the starting of the new health program.

### OTHER MEDICAL SOCIETIES

#### MIDDLE TENNESSEE MEETS AT LEWISBURG

The Middle Tennessee Medical Association will hold its fall meeting at Lewisburg, November 14 and 15.

Announcement has been received to the effect that the medical profession of Lewisburg and the Chamber of Commerce of Lewisburg are making every preparation for the entertainment of the membership.

The program is in process of preparation and will be mailed out about ten days before the meeting.

The East Tennessee Medical Association held their annual meeting in Elizabethton on October 8. The following papers were read:

"Some of the More Common Allergic Conditions," by Dr. E. T. Pearson, Elizabethton. Discussion opened by Drs. A. H. Lancaster, Knoxville, and Wm. B. Campbell, Cleveland.

"Appendicitis," by Dr. Lee K. Gibson, Johnson City. Discussion opened by Drs. Dewey Peters, Knoxville, and J. B. Haskins, Chattanooga.

"Some External Diseases of Eye of Interest to General Practitioner," by Dr. J.

Vernon Hodge, Kingsport. Discussion opened by Drs. W. A. Garrott, Cleveland, and Samuel Rybun, Morristown.

"Fractures of Shaft of Femur," by Dr. Jarrell Penn, Knoxville. Discussion opened by Drs. Troy Bagwell, Knoxville, and Dunbar Newell, Chattanooga.

"Simplification of Obstetrical Care," by Dr. L. S. Nease, Newport. Discussion opened by Drs. H. P. Hewitt, Chattanooga, and Richard McIlwaine, Knoxville.

"Pyothorax," by Dr. George E. Wilson, Rockwood. Discussion opened by Drs. D. R. Roach, Morristown, and W. B. Payne, Kingsport.

"Infantile Paralysis," by Dr. Wallace L. Poole, Johnson City. Discussion opened by Drs. W. E. Foree, Athens, and T. A. Caldwell, Jefferson City.

"Some Unusual Case Reports," by Dr. W. R. Arrants, Athens.

"Jaundice, Diagnosis, Treatment, and Prognosis," by Dr. R. L. Sanders, Memphis.

"Vomiting Problems in Infancy," by Dr. Joe T. Smith, Knoxville. Discussion opened by Drs. C. W. Frieberg, Johnson City, and Allen Turner, Bristol.

"Chronic Cholecystitis," by Dr. Vance H. Bell, Cleveland. Discussion opened by Drs. N. H. Copenhaver, Bristol, and E. G. Wood, Knoxville.

"Failure of Coronary Circulation," by Dr. C. B. Laughlin, Greeneville. Discussion opened by Drs. G. D. Lequire, Maryville, and D. D. Vance, Bristol.

"Some General Observations on the Diagnosis and Treatment of Tumors of the Brain," by Dr. C. C. Coleman, Richmond, Virginia.

#### ST. LOUIS MEDICAL SOCIETY INVITES SOUTHERN PHYSICIANS

The twenty-ninth annual meeting of the Southern Medical Association, the second largest medical organization in the United States, will be held in St. Louis, November 19-22.

The unusual clinical facilities of the two medical schools and the numerous hospitals, combined with the high standing of the medical profession, and the excellent hotel accommodations, make St. Louis an ideal city for this medical gathering.



Addresses and papers will be presented by distinguished clinicians, not only from the South, but from all over the United States, as well as from several foreign countries.

The St. Louis Medical Society extends a very cordial invitation to all physicians in good standing in their state and provincial medical societies to attend this meeting.

## ABSTRACTS OF CURRENT LITERATURE

### ANESTHESIA

By HUGH BARR, M.D.  
Medical Arts Building, Nashville

Variation in Reaction of Different Parts of the Central Nervous System as Influenced by Depressant and Stimulating Drugs. Dr. D. E. Jackson. *The Journal of Laboratory and Clinical Medicine*, October, 1934.

The author in experiments on dogs, using metrazol to counteract the depressant action of ether, evipal, and other barbiturates also trichorethylene on the respiration, came to the following conclusions:

No two general anesthetics or hypnotics possess the same action on the central nervous system. When anesthesia produced by each of two substances appears exactly the same, a marked difference may frequently be shown if a substance having a specific stimulating action on some particular part or center of the central nervous system be injected to counteract the anesthesia.

In a dog anesthetized with ether, metrazol produces marked generalized tremors or convulsions, but with little or no specific stimulation of the respiratory center. In a dog deeply anesthetized with evipal and other more recent hypnotics, metrazol produces marked specific stimulation of the respiratory center, but no tremors or convulsions. In a dog anesthetized with trichorethylene, metrazol produces a combination of these reactions. The respiratory center is stimulated and some tremors and convulsive twitchings are produced.

### OPHTHALMOLOGY

By ROBERT J. WARNER, M.D.  
Doctors Building, Nashville

Suture of the Retina. R. Rubbrecht. *American Journal of Ophthalmology*, September, 1935.

In a patient with retinal detachment of two weeks' duration the eye ground was found to be normal after twenty-four hours' rest in bed. No trace of a tear or other retinal lesion could be

found. The patient walked about for fifteen minutes, and the detachment reappeared, but promptly yielded again to rest in bed. Fixation of the retina was effected by two sutures, the needle entering the globe at 11 mm. and coming out at 18 mm. from the corneal limbus, and the two sutures being 6 mm. from each other. The sutures were removed on the fourth day. There was scarcely any pain. There was considerable preretinal effusion. In spite of a violent attack of sneezing about three weeks after the operation the retina remained in place and eventually the visual acuity was completely restored. The author notes similar excellent results in other cases reported in a previous communication. He believes the method to be especially applicable in recent cases and those in which the origin of the detachment can be precisely located. One might add patients in whom coughing or vomiting is to be feared.

### PEDIATRICS

By JOHN M. LEE, M.D.  
Doctors Building, Nashville

The Treatment of Milk Allergy and Its Basic Principles. Bret Ratner, M.D., New York. *The Jour. A. M. A.*, September 21, 1935.

Hypersensitiveness to milk occurs most often in infancy, but may occur at any age. It may manifest itself by mild or severe gastrointestinal disturbances, eczema, urticaria, asthma, mucous colitis, migraine, acne, marasmus or pylorospasm. Cases of severe anaphylactic shock and even death from this cause are cited in the literature.

Various theories as to the pathogenesis of this disease are given with the laboratory and clinical observations to support them. The immunochemistry of milk proteins is discussed, as are the effects of heating, drying, and the addition of acid. It is the opinion of the author that casein is not responsible for milk allergy, but the soluble whey proteins are the offending agents. Numerous investigators find that heat and evaporation do not change the antigenic properties of casein, but the whey proteins are specifically changed chemically by heat and evaporation.

Therefore, in the treatment of milk allergy, all raw milk should be eliminated from the diet, including milk used in the preparation of other foods. Also dry, pasteurized, acidified milk and milk boiled only a few minutes should be eliminated. Only milk that has been boiled for three to six hours or its commercial substitute, evaporated milk, should be used. In some cases of severe milk allergy it may be necessary to boil evaporated milk vigorously for several minutes before it can be tolerated. When available, goat's, ass's or human milk may be used in place of cow's milk, and recently a milk made from soy-bean has proven a satisfactory substitute.

These substitutes provide nourishment for the

patient, but they do not cure the allergy. This is accomplished by giving drop doses—or even a fraction of a drop—of raw cow's milk each day orally. The quantity is very slowly and gradually increased, according to the tolerance of the patient, and in from six to nine months the normal amount of raw milk can generally be taken. Thereafter for the remainder of his life the patient must take milk daily or there develops a relapse of the allergy.

It is suggested that milk allergy may be prevented by the avoidance of excessive amounts of raw milk by the pregnant woman, especially during the latter months of pregnancy, as overindulgence may sensitize the fetus in utero; by avoiding isolated feedings of raw cow's milk to the infant during the newborn period; by withholding raw cow's milk during convalescence, especially after gastrointestinal diseases; by refraining from excessive and exclusive milk diets; and by eliminating milk injections for nonspecific therapy.

### **SURGERY—GENERAL AND ABDOMINAL**

By BATTLE MALONE, II, M.D.  
1400 Monroe Avenue, Memphis

**Spinal Cord Tumors. An Analytical View of Thirty-six Cases.** Alexander T. Bunts. *Surgical Clinics of North America*, August, 1935.

The author deplors the fact that this condition is too often considered as a "last possibility," whereas an early surgical removal of the tumor often results in complete restoration of normal function.

The point of origin of the tumor may be the bony structure, the ligaments, the extradural fatty tissue, the spinal nerve roots, the blood vessels, the meninges, the cord and ectopic congenital rests. The tumors may be classified as extradural, extramedullary (intradural), and intramedullary.

**Symptomatology**—Pain, the commonest complaint, may be at the site of the tumor or referred along the distribution of a posterior root. It may be bilateral or unilateral. "Root pain" may lead to erroneous diagnosis, such as sacroiliac disease or sciatica. Other symptoms are disturbances of sensation, motor disorders and abnormal sphincteric function.

**Diagnosis**—(1) General physical examination should be made with a careful search for primary malignancy in the breast, abdomen, pelvis or prostate, and for the skin lesions of von Recklinghausen's disease. (2) Neurologic examination, with identification of the "sensory level." (3) Complete blood counts, urinalysis, and Wassermann reaction. Pernicious anemia and syphilis may thus be identified. (4) Roentgenograms of the spine may reveal changes in the bone, even though the tumor is within the spinal canal. (5)

Lumbar puncture and Queckenstedt's test. There is a partial or complete block in about 96 per cent of spinal cord tumors. "If the tumor lies in the region of the cauda equina, a dry tap or a bloody tap may result." The fluid is often yellow. (6) Lipoidal injection (1 cc.) through a cisternal puncture will often reveal the level of the lesion.

**Differential Diagnosis**—Tabes dorsalis, multiple sclerosis, amyotrophic lateral sclerosis, and subacute combined degeneration of the cord found with pernicious anemia may be confused with spinal cord tumors, but with the careful diagnostic study outlined above, these should be ruled out. Syringomyelia may resemble an intramedullary tumor. Some of the rare conditions necessitating differentiation are extradural pyogenic abscess, infiltration of the meninges or cord with Hodgkin's granuloma, circumscribed serous meningitis and prostatic cysts.

**Treatment**—Surgical removal can usually be done in extramedullary tumors. With "intramedullary tumors spinal decompression and radiation offer the only therapeutic refuge."

**Prognosis**—Early removal of extramedullary tumors affords a good prognosis. With intramedullary growths only temporary improvement follows any type of treatment. In a review of the end results in 208 cases of spinal cord tumors of all types, Elsberg found sixty-three per cent of all the patients well or greatly improved. The author reviews thirty-six cases of spinal cord tumor. Metastatic tumors of the spine are excluded. The types of tumors which were identified were neurofibroma, ten cases; meningioma, seven cases; glioma, seven cases; and a varied assortment of single cases, most of which were some type of sarcoma.

The majority of tumors (65.5 per cent) occurred in the thoracic portion of the spine. The transverse positions of the tumors were as follows: Intramedullary; intramedullary and extramedullary, four; intradural and extramedullary, seventeen; extramedullary, three; and extradural, eight.

The age of the majority of patients was between thirty and fifty years. In regard to the sex, there were a few more women than men. Neurofibroma was four times more prevalent in males than in females.

The color of the spinal fluid was recorded in twenty-nine cases, being yellow in eighteen and colorless in eleven. In all cases the globulin was increased. The cell count was normal in every case. The Queckenstedt test showed a complete block in 66.6 per cent of the cases; partial block in 25.9 per cent; and no block in 7.4 per cent.

**End Results**—The best results were obtained in tumors such as neurofibroma and meningioma. The results of the treatment of intramedullary gliomata were poor. The treatment of the sarcomata was not very successful except as a pallia-



tive measure. Irradiation therapy in two of these cases appeared to prolong life for several years.

## UROLOGY

By TOM R. BARRY, M.D., F.A.C.S.  
Medical Building, Knoxville

Syphilis and Marriage. S. S. Greenbaum and S. Katz. *Am. J. Syphilis*, April, 1935.

This work was done to test the transmission of syphilis by semen. In untreated syphilis, transmissibility to others is a question: First, duration of infection; second, presence of open lesions; third, secretions, saliva, vaginal secretions, blood, and semen in particular; and fourth, tissues harboring the spirochaetes.

Practical experience has shown that many men, who have married within a year or two after contracting syphilis and who have never had adequate treatment, have contaminated neither the wife nor child.

Most syphilologists believe "that intercourse is permissible after six months' treatment, provided a condom is used, and that intercourse occurs during the arsphenamine phase of treatment." They also believe marriage and unrestricted intercourse is permissible only after twelve or eighteen months of treatment, during the last year of which the serology is negative.

These authors believe that the old theory just stated is due for modification.

Demonstration of spirochaetes in semen is comparatively a recent accomplishment. Pinard and Hock state that spirochaetes are present in twenty-seven per cent of semen of the active syphilitic. Eberson and Engman state they are present in eighteen per cent of chronicluetics.

In this series twenty-five patients were studied as to the presence of spirochaetes in semen. Only one specimen of semen was done on each patient. Fresh sterile semen was injected into the testicle of a rabbit. After three months' observation the inguinal lymph nodes were removed, macerated, and injected into the testicles of two fresh animals. These were likewise observed for three months. Of these twenty-five patients, five were acute and twenty chronicluetics. In none was a semen specimen positive.

From these studies they conclude that the arsenicals and bismuth compounds exert a sterilizing effect on the semen.

They recommend this method of determining the infectiousness of allluetics contemplating marriage.

## BOOK REVIEWS

Syllabus of the Diseases of the Nose, Throat, and Ear, for Junior and Senior Students. Richmond McKinney, A.M., M.D., Memphis, Tenn. Seventh edition. 132 pp. \$2.00.

This short outline of otolaryngology should be of value to the teacher of this subject. It gives a brief outline which is not bulky and cannot be disarranged as can the usual set of typewritten notes. It should also be of value to the student who is reviewing the subject for state board or other examinations. Used in this way this book should be of definite service.

As stated by the author in his preface, this book is in no way to be considered as a book of reference for student or practitioner.

Gynecology. Brooke M. Anspach. J. B. Lippincott Company, Publishers.

The fifth edition of this book has been "reillustrated, reset, and completely revised by the author." This has been necessary because of the many recent advances made in this branch of medicine.

The early chapters take up the embryology of the pelvic organs, their anatomy and physiology. This is followed by a discussion of history taking and methods of physical examination.

This logical approach to the diseases of the female pelvic organs is to be commended. The chapters devoted to these subjects are full and informative, but are not burdened by unnecessary theories or useless details. They should be of value to the student who first approaches the subject as well as the practitioner who wishes to refresh his knowledge.

The various gynecological diseases are discussed in succeeding chapters in a clear, concise manner, with a pleasing freedom from repetition or padding.

The author has realized the great importance of diseases of the rectum and the urinary tract to those who practice gynecology. Consequently he has included in his book chapters on diseases of these organs.

Each chapter is followed by a bibliography that adds to the value and attractiveness of the volume.

Dr. Anspach is to be commended for an excellent text on gynecology.

# THE JOURNAL

OF THE

## TENNESSEE STATE MEDICAL ASSOCIATION

DEVOTED TO THE INTERESTS OF THE MEDICAL PROFESSION OF TENNESSEE

ISSUED MONTHLY, Under Direction of the Trustees

H. H. SHOULDERS, M.D., Secretary and Editor

W. M. HARDY, M.D., Asst. Secretary-Editor

OFFICE OF PUBLICATION, 510 DOCTORS BUILDING, NASHVILLE, TENNESSEE

Volume XXVIII

NOVEMBER, 1935

No. 11

### SYMPOSIUM ON THE MANAGEMENT OF TRAUMATIC CASES

At the last meeting of the State Society a symposium on the "Management of Traumatic Wounds" was given. We are attempting to give these papers in one issue of THE JOURNAL and thereby probably enhance their value to the membership.—*Editor.*

#### THE PRELIMINARY MANAGEMENT OF THE SERIOUSLY INJURED\*

DUNCAN EVE, JR., M.D., Nashville

This paper includes the preliminary management of the most frequent injuries in traumatic surgery. That is, what to do and what not to do; however, it does not attempt to deal with the treatment proper.

There is no special type of injury to railway casualties, for all of them are now met with in highway accidents. The point is that railway surgery is not a specialized branch of traumatic surgery. As a matter of fact, the big problem in traumatic surgery applies equally to those injured in automobile accidents.

First aid, we might say, is more of a preventive and not necessarily a curative.

*Wounds.*—The chief object is to stop hemorrhage, prevent infection, and prevent scar formation. For an open wound, the best first aid dressing is a compress of sterile gauze. As to the best antiseptic, personally I have very little faith in any antiseptic for a traumatic wound. I much prefer benzine or ether and soap and water. However, for the extensive wounds, iodine is my choice as it probably helps and does no harm. Wounds should be handled with care and painlessly. Lacerated and incised wounds should be prepared the usual way and then, with local anesthetic, repaired with fine silk.

For abrasions, small cuts, secondary infections, and lymphangitis, the best dressing in our clinic has been a mixture of equal parts of ninety-five per cent of ethyl alcohol and pure glycerine. For extensive brush wounds, dirty wounds, and the wounds following tannic acid treatment in burns, I prefer peroxide of hydrogen and green soap. For the extensive infected wounds, we still use Dakin's solution and the tubes. For all open wounds that are produced on the highway and on the ground, the A.T.S. should be used.

*Fractures.*—The chief object of treatment is to relieve pain and shock, prevent compounding, and avoid added displacement.

Applying a splint or immobilizing the fracture is the outstanding first aid treatment. There are numerous splints recommended for emergency use. The first aid splint is designed only for the upper and lower extremities. In many railroad shops, roundhouses, and large plants, the problem is easy, as they have the proper splints. For transport and temporary use the Thomas or modified Thomas splint is the best. It is a fact that repair of fractures begins early, and reduction before edema and swelling occurs results in better replacement, and hence diminishes time of disability, and better function where union has occurred. Institute definite treatment as soon as possible and do not delay the reduction until the next day. There is no doubt that traction lessens pain and shock and prevents further damage in fractures of the

\*Read before the Tennessee State Medical Association, Nashville, April 9, 10, 11, 1935.



extremities. Therefore, the ideal management for fracture of the extremities would be to apply the Thomas splint at the site of accident, and if not there, as soon as possible before sending the patient to the hospital.

I am sure that in a few years' time all ambulances, patrol wagons, fire departments, railway shops, and large industrial plants will be equipped with the Thomas splints. Then all fractures of the lower extremities from the hip joint through the lower end of the tibia and fibula should be placed in Thomas splints before the case is brought to the hospital. The same for the upper extremity. Any fracture from the shoulder to the middle of the forearm should be brought to the hospital in traction splint.

Other methods of immobilization of the lower extremity: The limb should be placed on a well-padded board, extending from a few inches above the ankle to well above the sacrum, another padded board should be placed on the outer side, extending from the foot to the axilla, and, if necessary, apply a board on the inner side of thigh and leg. Another method for transport could be a long posterior plaster of Paris splint including the foot.

Management of fracture of lower extremity: When first seen, examine the injured part and make a tentative diagnosis to see if there is a fracture. If compound, apply a large sterile gauze compress, and then reduce any marked deformity by very gentle longitudinal traction. Apply a splint to immobilize the entire extremity, and, if possible, use some form of traction. Give enough morphine to relieve pain. Treat the shock, if present, by heat, and then transport with extreme care. All compound fractures should be given A.T.S. and should be made a closed fracture as soon as possible.

In brief, all extensive compound fractures and fractures in or near joints of the lower extremity should be transported with a Thomas splint, if satisfactory results are to be obtained.

*Head Injuries.*—Head injuries are becoming more and more frequent on account

of the ever-increasing number of automobile accidents. The serious condition about a head injury is not what happens to the skull, but what happens to the intracranial contents.

The proper management of head injuries is very important to us all, and certain routine procedure should be performed. Very often many of the most serious accidents occur in the country districts. It is important that these serious head injuries should not be transported, unless necessary, until the primary shock is over, which is usually twenty-four hours.

When the patient comes under our care, the proper management should be carried out.

First, the period of shock. The main symptoms consist of subnormal temperature, diastolic pressure of sixty or below, rapid pulse 110 to 130 and shallow respiration.

Second, period of emergency treatment. Heat applied to body. Shock cabinet if possible. Atropine. Pituitrin surgical and ephedrine if necessary.

These drugs are to prevent further loss of fluids from the skin surface. At this stage the cardiac stimulants are not required. Caffeine, sodium benzoate, and adrenalin stimulants temporarily tide over a failing circulation. Besides the usual treatment of shock, intravenous administration of fifty per cent glucose should be given. It lessens stupor and edema and elevates the diastolic pressure. In all head injuries one must determine the presence or absence of intracranial pressure. The glucose can be repeated in four hours if necessary. Occasionally, it may be necessary to add fifty to 100 cc. of saline solution along with the glucose when shock is severe. It is far better to repeat small amounts of saline, from fifty to 100 cc., when shock persists, than to give a large quantity of fluids by vein, as a large quantity will increase cerebral edema and intracranial pressure.

Other orders should be carried out. Elevation of foot of bed, icecap to head, blood pressure, temperature, pulse, and respiration taken every twenty to thirty minutes for first few hours. The patient must be

kept quiet. The majority of surgeons state that morphine should be avoided; however, it is used in at least fifty per cent of my cases. Also, sodium luminal of two grains and chloral hydrate fifteen grains can be used. Fluids should be limited to twenty ounces per day. The patient should be disturbed as little as possible the first twenty-four hours, or until he has recovered from shock, and then a neurological examination can be made. Blood and fluid escaping from the external auditory canal decompress themselves in this way; therefore, the canal should be wiped out with boric acid solution and sterile gauze or cotton applied loosely, as meningitis is most fatal of all complications of head injuries. It develops fairly early and most frequently by way of perforated drum membrane.

#### SUMMARY

First. All head injuries should be looked upon as serious.

Second. The first care is to treat the shock and never operate upon or examine more than absolutely necessary, except to control hemorrhage.

Third. Should not distinguish between fractures of the base of the skull and fractures of the vault. The guide for treatment is based on the intracranial injury.

Fourth. During shock, do not attempt to dehydrate the patient, and it is not necessary to rush a patient to the X-ray room. These should be postponed until a more suitable time.

Fifth. All patients should be kept in bed for a long period and kept from active work for several months.

Very frequently head injuries are associated with other injuries. Fractures of the upper extremities and the lower extremities can be immobilized by a Thomas splint. Therefore, traction can be applied to both extremities. Many fractures with head injuries can be reduced by local anesthesia. With spine and pelvic fractures, the patient can be placed on a Bradford frame or can use a fracture board under the mattress; therefore, all fractures can be treated temporarily, or until the primary shock has passed. Open wounds of the soft parts associated with head injury can be taken care

of by applying a sterile compress for twenty-four hours and then can be repaired. However, all face wounds should be repaired as early as possible.

If the patient is in a considerable degree of shock, he should be left undisturbed until some reaction is noticed, and until there is a rise of blood pressure.

*Spine.*—Injuries to the spine should be examined, if possible, at site of the accident before they are moved, to see if the spinal cord is involved. Remember eighty per cent of spine fractures (compression) occur between the tenth dorsal and the third lumbar. The diagnosis is made on the history and localized pain and tenderness. In case the patient is in severe pain and cannot raise himself, he should then be transported with extreme care. He should be placed on his abdomen, and in lifting the patient his spine should not be flexed. If possible, a pillow or some object should be placed under the patient's chest, so as to prevent flexion of the spine. After arriving in the hospital, if there is any degree of shock, it should be treated before the X-ray is made.

Complete reduction of fresh compression fractures are possible when proper hyperextension and fixation are applied early.

*Pelvic Fractures.*—These are frequent injuries, and the displacement depends upon the amount of force. The diagnosis usually can be made by presence of localized pain and tenderness. Fractures of the pelvis are often serious injuries and are associated with shock, and should be transported with great care.

In a fair per cent of pelvic fractures the urethra or bladder is injured; therefore, always make a rectal examination to see whether any sharp spicules of bone protrude toward the rectum. The urethra should be carefully examined for blood. A soft rubber catheter should be used in obtaining a specimen of urine. In case of free blood, the catheter should be left in place. Occasionally when the urethra is torn and the urine cannot be passed through the track, a suprapubic cystotomy should be performed. To establish a diagnosis in detail will require the X-ray.

The overhead pelvic suspension frame



with traction on limbs and a fracture board give the best results.

*Amputations.*—The danger in amputation is shock and hemorrhage. In all extensive wounds (crushed) that require amputation, the tourniquet should be applied immediately around the arm or thigh and never around the forearm or leg. Remove only the clothes in the neighborhood of the wound, and apply a large sterile gauze compress and maintain by a firmed bandage. If the crushed condition involves the forearm or leg, then immobilize with a splint the elbow or knee joint. Morphine is given, and the patient can be transported. After arriving in the hospital, treatment of shock should be instituted. The shock resulting from major amputation is due mainly to the division of large nerve trunks close to the body.

Shall amputation be performed at once, or shall it be delayed for several hours? Many surgeons still postpone the operation several hours; however, the writer prefers to operate in a short period after arriving in the hospital, due to the fact that in many cases the extremities are attached by a few shreds of tissue. In many cases it is impossible to secure proper compress of the vessels, the tourniquet being on too long, and there is risk of hemorrhage.

All cases should be given the A.T.S., and those with extremities that are extensively mangled or crushed and especially those coming from a long distance should be given the gas-bacillus serum.

*Gunshot Wounds.*—The management consists of early application of sterile dressing and noninterference with the wound, except to arrest the hemorrhage. Early immobilization in case of fracture. Early administration of A.T.S. and treatment of shock. After reaction of shock, if possible, get a complete detail history of the accident and get the patient to a hospital for final diagnosis and treatment, especially if it is an abdominal wound.

*Traumatic Injuries of the Abdomen.*—The main symptoms are pain, either local or general, abdominal rigidity, and dullness in the flanks. Usually such injuries are associated with shock; however, occasionally shock is not present, especially if an opiate

has been given. Majority of patients will request a delay of the operation; however, a delay beyond eight to ten hours will probably result in peritonitis and death to the patient. In all traumatic conditions of the abdomen it is better to hospitalize, and observe carefully the patient.

*Extensive Burns.*—The extent of the burned area is of more importance than the depth. The conditions to combat are shock and toxemia. Shock is due to pain, loss of body heat, and loss of body fluids.

The management of burns may be briefly described as follows: Immediately give a large dose of morphine to relieve the intense pain. All burned area is then covered with dry sterile gauze and maintained by a gauze bandage. This dressing is then soaked with fresh 2.5 per cent aqueous solution of tannic acid. The dressings do not have to be inspected for sixteen to twenty-four hours, or until the parts become a light brown in color, when all dressings can be removed. However, it is best to wet the dressings again with tannic acid solution a short time before the removal. The wound is now left exposed to the air under a cradle, with or without artificial heat, depending upon the area and extent of the burn. All patients should have force fluids 4,000 to 8,000 cc. per twenty-four hours, and with very extensive burns, blood transfusion.

The preliminary treatment of burns with tannic acid compresses followed by exposure to air lessens toxemia.

*Shock.*—Surgical shock has been described by Fraser, as a state of depression of all the body functions, primarily induced by injury and characterized by a progressive fall in the blood pressure. The patient responds clearly; the skin is cold and clammy with beads of perspiration on the face; the muscles are relaxed; the pulse is rapid; the respiration is shallow and irregular; and marked thirst and insensibility to pain completes the picture.

In such injuries as have been discussed in this paper, we are concerned with secondary shock which appears an hour or more after the injury. Primary shock is still unexplained, but its rapid onset within the first hour after trauma indicates that it is of nervous origin.

**Treatment:** The active treatment of surgical shock should include heat, morphine to control pain, rest, and the replacement of lost blood volume by intravenous fluids, the best of which is blood or plasma. Neither normal nor hypertonic saline solutions are retained in the vessels and further deplete the proteins; however, good results have been reported from intravenous injection of 2,000 to 8,000 cc. of normal saline at the rate of 500 cc. every fifteen minutes.

Vasoconstrictor drugs as adrenalin and pituitrin are not indicated in secondary shock as the adreno-sympathetic system is already markedly stimulated. Ephedrine causes dilation of the intestinal and limb vessels and increases the rate of cardiac contractions, and good results have been reported of its use; however, at times it depresses the heart. Digitalis may be of some value if the heart was diseased prior to the onset of shock. Therefore, we might say that stimulants are of little value. Elevation of the foot of the bed and bandaging of the extremities will aid in the return of blood to the heart.

## BRAIN INJURIES — THEIR MANAGEMENT\*

THOS. D. MCKINNEY, M.D., F.A.C.S.,  
Nashville

For the purpose of practical management brain injuries may be classified as mild, moderate, and severe. The terms "concussion" and "compression" should be discarded, since they have come to be so loosely used as to cause much confusion.

In a discussion of head injuries, it is hardly necessary to emphasize the relative unimportance of fractures of the skull bones. Yet, unfortunately, compensation is allowed on the X-ray evidence of a "fracture of the skull." The important consideration as to life and function is the injury to the brain and its blood vessels.

### PATHOLOGICAL PHYSIOLOGY

No surgeon should undertake the management of brain injuries who is not thoroughly familiar with the fundamental phys-

iology of normal intracranial pressure and the pathological alterations which follow injury to the brain, keeping in mind that normal intracranial pressure is maintained by a physiological balance between production and absorption of cerebrospinal fluid. This pressure is approximately 130 to 150 mm. of fluid which is practically the same as that of intracranial venous pressure. There is a constant flow of cerebrospinal fluid from the ventricular system where it is produced by the choroid plexuses to the cerebral surfaces where absorption takes place. The fluid escapes from the ventricular system into the basal subarachnoidal cisterns through the median and the two lateral foramina of the fourth ventricle. From these basal cisterns it passes through the subarachnoidal channels upward over the cerebral hemispheres. Cushing has called this constant flow of cerebrospinal fluid the "third circulation."

Interference with absorption of cerebrospinal fluid by obstruction or compression of subarachnoidal channels causes an accumulation within the ventricle system with increased intracranial pressure. In brain injuries, interference with absorption often is an important *secondary* factor in the production of high intracranial pressure. However, in brain injuries, the primary acute intracranial pressure is produced, *first*, by hemorrhage and, *second*, by edema of the brain tissue. Following injury, just as other traumatized soft tissues react, the brain swells. The swelling compresses the veins, interfering with the return blood flow, thus tending to extend the area of edema. A local injury may in this way produce a widespread edema. The swollen brain tends to collapse the cerebral subarachnoidal channels, thus interfering with *absorption*, thereby bringing into play this additional factor in the production of acute intracranial pressure. Hemorrhage, particularly from the torn middle meningeal vessels, may produce an extremely acute increase of intracranial pressure which may be rapidly fatal.

The ultimate effect of increased intracranial pressure is the production of anoxemia (lack of oxygen) in the brain tissue. The danger to life is the starvation of the

\*Read before the Tennessee State Medical Association, Nashville, April 9, 10, 11, 1935.



vital centers of the medulla through lack of oxygen and nutrition. The first effect of anoxemia on these vital centers is that of irritation, by which they are stimulated to make compensatory efforts, but when it has gone to a further degree the centers become exhausted and death usually follows. Therefore, in brain injury, we observe the clinical pictures of medullary compensation and of medullary exhaustion.

In the clinical picture of "compensation," we find a slow regular pulse, increased blood pressure, respiration slow and regular, temperature below 101 degrees F., and the patient's state of consciousness remains stationary or improves. So long as this stage can be maintained, the patient's life is safe. When the dangerous stage of medullary "exhaustion" is approaching, the clinical picture changes greatly. The blood pressure falls, the pulse pressure increases, pulse becomes rapid and irregular in rate and volume, respirations rapid, irregular, and shallow, and the temperature rises. The patient becomes extremely restless or the coma deepens, there may be involuntary micturition and defecation, and unless the patient's condition improves death soon follows.

With these fundamental facts in mind concerning the pathological physiology involved in brain injury, we may proceed with the discussion of active management of the patient in the stages of (1) shock, (2) acute intracranial pressure, (3) during convalescence, including sequelae.

#### MANAGEMENT DURING STAGE OF SHOCK

Patients with mild brain injury should be placed in bed and kept under constant observation for a period of twenty-four hours at least. Most patients immediately following brain injury, and usually on arrival at the hospital, are in a state of shock.

The condition of shock is indicated by:

- (a)—Subnormal temperature.
- (b)—Cold, clammy extremities.
- (c)—Low diastolic blood pressure, usually below sixty mm. H. G.
- (d)—Pulse usually above 120 beats per minute.
- (e)—Increase in respiratory rate.
- (f)—A rising pulse pressure.

These patients should be carried immediately to an observation ward or room, and placed in a warm bed, *without unnecessary handling*. The usual practice of sending these patients to the X-ray department for pictures of the skull is highly injurious to the patient, and the information obtained is practically worthless. In one instance only, immediate X-ray evidence of fractures of the skull may be of value. When the diagnosis of hemorrhage from the middle meningeal vessels is uncertain, the picture may show a linear fracture of the skull crossing the branches of the middle meningeal artery. This additional evidence may influence the surgeon to proceed with an immediate operation for the control of the bleeding. It is true that the degree of depression of the skull bone may be determined very accurately by X-ray, but examination through the scalp wound will usually afford the same information. The elevation of depressed bone is never an emergency procedure and should be deferred until the patient's life is safe. The results derived from elevation of depressed bone of the skull probably are of psychic and cosmetic value only. The underlying brain is already damaged and the elevation of the bone can have little effect on the final results. Even repair of scalp wounds should not be made during the stage of shock. These wounds should be packed with antiseptic gauze for control of hemorrhage. Later when the patient's condition permits, and after examination of the underlying bone, and a thorough debridement of all devitalized tissue, these wounds should be closed with interrupted silk without drainage.

The so-called "diagnostic" lumbar puncture should *never* be made when the patient is in shock. At this time it is a highly dangerous procedure and affords no information of value in the management of the patient. Magnesium sulphate administered per rectum or otherwise during this stage is harmful, and should be deferred until the patient has reacted from shock. No lengthy neurological examination should be made at this time. Blood pressure, pulse rate, temperature, and respiration should be recorded at fifteen-minute intervals.

Apply external heat, by the use of warm blankets, hot-water bottles, or shock cabinet, if one is available. Atropin sulphate, grains 1/100 for adult dose, and pituitrin (surgical) fifteen mm. may be given hypodermically. Ergot, ephedrine, and caffeine occasionally may be of value.

The immediate intravenous administration of fifty per cent glucose is indicated in this stage, both for its value in shock and to lessen the cerebral edema which is to follow. Twenty-five to sixty cc. are given, the larger dose for fat, boggy, or alcoholic patients. Occasionally fifty to 150 cc. of N. 1 saline may be given. A large quantity of saline as so commonly given in the condition of shock is not only unnecessary, but adds dangerously to the degree of subsequent cerebral edema. Blood transfusion may be indicated where there has been excessive bleeding from the scalp or other wounds of the body. If there is hemorrhage or escape of cerebrospinal fluid from the ears, nose, or sinuses, irrigation should never be used. Simple sponging and packing with antiseptic gauze will greatly lessen the danger of meningitis.

#### MANAGEMENT DURING THE STAGE OF ACUTELY INCREASED INTRACRANIAL PRESSURE

After the patient has recovered from shock, the chief concern is the prevention and control of acute intracranial pressure. Here again these patients must be kept completely at rest, except the patients in coma must never be allowed to remain lying on their backs, and should be turned frequently from side to side. No morphine should be given because of its depressing effect on an already impaired respiration. Sedatives such as sodium luminal and sodium amytal, supplemented by sodium bromide and chloral, may be administered with much more safety than morphine. During this stage, dehydration is the means by which the physician can assist nature in taking care of swollen brain and the damaging increased intracranial pressure. Acute pressure due to extradural hemorrhage, of course, demands immediate operation with ligation of the bleeding vessels.

Dehydration is accomplished by limiting the total fluid intake and the administration

of hypertonic glucose intravenously, supplemented at times by magnesium sulphate per rectum. The hypertonic glucose acts by increasing the osmotic pressure of the blood so that fluids are abstracted from the tissues, thereby reducing the edema and brain volume. No absolutely fixed rules can be given to obtain the maximum dehydration and at the same time avoid overdehydration. The closest clinical observation of the patient's condition is required to maintain this balance. Usually, a total fluid intake limited to 1,000 cc. and the administration of twenty-five to fifty cc. of fifty per cent glucose intravenously every four to six hours will control the pressure in cases of moderate severity in adults. Even mild cases which show little evidence of increased pressure should have the benefit of rest in bed and dehydration to prevent or diminish the degree of oncoming intracranial pressure.

After considerable experience with spinal puncture employed as a therapeutic measure in the control of intracranial pressure, I am convinced that, as ordinarily performed, it is a dangerous procedure and should not be used even for the purpose of removing bloody fluid. Experimental evidence indicates that repeated spinal punctures, with withdrawal of bloody fluid, do not materially hasten the disappearance of known quantities of blood which have been injected into the subarachnoid space. The meningocytes take care of the removal of blood cells. The danger of spinal puncture increases in direct proportion to the height of the intracranial pressure.

Some surgeons, usually those who do not make use of dehydration, find a group of cases, varying up to as high as ten per cent of the total, in which they believe they are able to save the lives of these patients with a well-timed and properly-executed subtemporal decompression.

In my experience, using rest and dehydration, I have not been able to find such group. The procedure seems wholly inadequate to save the patient whose condition is so desperate that pressure cannot be controlled by the more conservative means. I have not performed a subtemporal decompression solely for the relief of pressure in



these cases in several years, and I feel quite sure my mortality rate has not been increased as a result.

In my opinion, some cases not controlled by dehydration might be saved by trephine and ventricular punctures as employed by neurosurgeons for increased pressure following intracranial operations. Patients with fractures in the occipital regions, with evidence of compression of the medulla, should have the benefit of decompression operation with removal of arch of atlas and opening the cisterna magna for continuous drainage.

In a series of 291 cases on one of my services—the Nashville General Hospital—the total mortality rate was 18.9 per cent, and excluding the desperate cases dying in the first twelve hours, 10.6 per cent.

No subtemporal decompressions were performed for the control of pressure. However, prior to about one year ago, spinal puncture was employed in some cases in conjunction with the rest and dehydration method.

#### MANAGEMENT OF CONVALESCENCE AND SEQUELAE

A mistake so very commonly made is to allow these patients to get out of bed too early. The moderate and severe cases should be kept in bed from four to six weeks. They should not be allowed to resume their normal mental and physical activities for a period of three to six months, and severe cases for a much longer period. The injured brain is long in fully recovering and readjusting its disturbed pressure relations. Many of the sequelae can be avoided by reducing the activities of these patients for longer periods than are ordinarily required by most surgeons.

One of the most frequent sequelae is traumatic psychosis, the treatment of which is continued rest with attention to elimination and water balance and the adjustment of anticipated compensation.

Traumatic epilepsy may be benefited or relieved surgically when due to focal injury of the motor cortex.

Meningitis is a dangerous complication when the brain injury is associated with compound fractures of the skull. It usually

appears early, and in an occasional instance, by early operation for continuous cisternal drainage, the patient's life may be saved.

Brain abscesses require drainage or aspiration.

Slow bleeding from a broken vein may produce a subdural hematoma. These produce pressure signs which may appear days, weeks, or months following even a trivial head injury. They are easily relieved surgically by the simple removal of the clot.

A similar picture may be produced by the escape of cerebrospinal fluid into the subdural space through a tear in the arachnoid. Small trephine with dural puncture allows escape of the fluid with relief of the symptoms.

Arteriovenous aneurysms are usually cured by ligation of the internal carotid.

Cerebrospinal fistulae, if persistent, are satisfactorily closed by fascial transplants placed over the dural opening.

#### SUMMARY

In summary I would like to emphasize the following points:

First. The surgeon who undertakes the management of brain injury cases should have a thorough understanding of the pathological physiology involved, and its relation to the variations in the clinical picture of the patient.

Second. The patient in shock should be treated for the shock, and all unnecessary handling, such as for X-ray pictures, should be avoided. Also diagnostic lumbar puncture is not only dangerous but useless.

Third. Rest and carefully-balanced dehydration afford the best means of controlling acute intracranial pressure. The routine use of lumbar puncture as ordinarily performed should be discarded. It is rarely indicated and should be performed with the utmost caution. Subtemporal decompression is not adequate for the control of acute general intracranial pressure and rarely, if ever, is indicated. Trephine with ventricular puncture seems a preferable procedure in the desperate cases where medullary compensation is broken.

Fourth. By keeping the brain injury patient in bed longer, and by restricting the mental and physical activities for a longer

period of time, many of the sequelae may be avoided. Except for traumatic psychosis, many of the remaining sequelae to brain injury may be amenable to surgical relief.

### FRACTURE OF THE SPINE AND PELVIS\*

R. WALLACE BILLINGTON, M.D., F.A.C.S.,  
Nashville

The regions assigned to me in this symposium are now the frequent site of fractures which often present grave problems in their management. Moreover, fractures of these parts are probably more frequently overlooked than those in other parts of the skeleton, and thorough methods of diagnosis must be considered. To cover this subject fully in one brief paper is manifestly impossible, so I shall have to limit this discussion to the points which seem most important or needing greatest emphasis before this group, composed largely of general practitioners, who, whether they wish it or not, are not infrequently called to meet such emergencies.

Since the first aid care of accident cases is being discussed in another paper, I shall only repeat for emphasis the necessity of very carefully handling any injured person who may possibly have a fracture of the spine or pelvis. The patient may be dazed or unconscious, there may be painful injuries of other parts, and in the excitement and confusion of the surroundings it may be difficult or impossible to know whether or not these regions are injured. It is always best to "play safe, when in doubt," and "handle with care." Rough handling, allowing the patient to sit or stand up, especially flexing the neck or body, may easily result in serious damage to spinal cord or nerves or pelvic viscera. Such additional trauma can usually be avoided by carefully placing the patient on a stretcher, preferably face down, before allowing him to be moved from the scene of the accident. You have, no doubt, already learned how to make an improvised stretcher out of one or two boards, or of two small poles or timbers around which are wrapped a blanket,

rug or sheet to form a sort of hammock, which may sag transversely but not longitudinally. The spine should be kept moderately extended, never flexed.

As a rule, fractures of the spine and pelvis should be treated for a while, at least, in a hospital and should be brought there as soon as possible. If the patient is in shock or great pain, he should be put to bed at once and given proper treatment for their relief before subjecting him to further movements, such as in making X-rays. The examination should, of course, be as prompt and thorough as his condition will permit, and cases without such urgent symptoms may be radiographed at once. Certainly this should be done as soon as possible with safety. The pelvis and hips can usually be satisfactorily radiographed in bed with a portable machine, but it is dangerous to depend on any but the best pictures for diagnosis of spine fractures. Moreover, there must be lateral as well as anteroposterior views. These require a good X-ray machine and a Bucky diaphragm. The lateral view is often the more informative, particularly in compression fractures of the vertebral bodies and in most fractures of the cervical region. While it is often possible to diagnose a fracture of spine or pelvis by the presence of deformity, crepitus, and localized pain, good X-rays are essential to determine the exact location and extent, and thus guide the surgeon in his treatment.

### FRACTURE OF THE SPINE

A fracture of a vertebra should be suspected in every case of severe trauma to the body or neck if there is pain on motion and local tenderness to firm pressure at any point along the spinal column. If there is also a slight prominence of the spinous process (kyphosis), there is probably a compression fracture of the vertebral body. Girdle or referred pain, or paralysis at or below this level, may be present, indicating spinal nerve or cord injury. In older patients who often have atrophy and decalcification of the vertebrae, little force may be required to produce a fracture, such as sitting down or stooping suddenly and in lifting a heavy weight. It is now a com-

\*Read before the Tennessee State Medical Association, Nashville, April 9, 10, 11, 1935.



mon occurrence to find evidence of compression fractures of vertebrae which have gone for months or years undiagnosed and untreated, in spite of deformity and persistent pain. The diagnosis can usually be made accurately and positively by X-rays, but let me again emphasize the necessity for good, clear pictures, and lateral as well as anteroposterior views. While fractures of the transverse and spinous processes are not usually serious, they should always be looked for carefully and, if present, properly treated.

A careful examination for spinal cord and nerve root injury should be made as early as possible after the accident. If the cord is damaged, it is extremely important to know whether motor and sensory paralysis below the level of injury appeared immediately at the time of the trauma, and whether it was partial or complete at that time. Paralysis which is both immediate and complete indicates serious if not hopeless damage to the spinal cord. If paralysis is absent or only partial at first, and appears or increases later, the prognosis is much more favorable. Spinal puncture and the Quickenstedt test will help determine the amount of pressure on the cord and the advisability of laminectomy.

It should also be remembered in making the examination that two or more fractures at different levels of the spine are not so infrequent, and one of these may be easily overlooked. The most frequent site of fractures of the spine is from the twelfth dorsal to the third lumbar vertebra, inclusive. Next in frequency is the cervical region. But no vertebra is immune, including all from atlas to coccyx.

The prognosis depends on several factors. The most important is the presence and degree of damage to the spinal cord. Spinal nerve root injury is less serious, but may result in permanent paralysis in the area supplied by such nerves. If the whole cord is severed or severely crushed, there can be no recovery. A mild contusion or pressure from bone or cartilage or from edema and hemorrhage may cause paralysis difficult to distinguish from partial or complete severance of the cord. If this pressure is not relieved promptly (within twelve

to twenty-four hours), further damage to its fibers is likely to result. This is the type of case that may be benefited by a decompression operation (laminectomy), and the sooner it is done the better the prognosis. Some claim that if the pressure is due only to edema or hemorrhage the results are as good or better without operation. This point, however, is controversial and difficult to determine exactly. So, it must be admitted that in patients who have cord injuries the outcome in some is hopeless, in the others more or less uncertain, and the indications for laminectomy are still an unsettled problem.

As a rule, fractures with cord involvement are much more serious in the cervical and upper dorsal regions than at lower levels, due to the danger of ascending edema of the cord and of pulmonary complications when the intercostal muscles are paralyzed. The danger of ascending bladder and kidney infection in all cases with loss of bladder function is, of course, generally recognized.

A detailed discussion of the treatment of cases with involvement of the spinal cord will not be attempted here. They are difficult cases, at best, and should be handled only by one familiar with the neurological problems as well as the treatment of the damage done to the spinal column.

Fortunately, the majority of fractures of the spine do not have this serious complication, and now, with our improved methods of treatment, we can promise good, if not perfect, recoveries in most cases. Little need be said about fractures of the spinous and transverse processes of the vertebrae. They usually heal readily without prolonged or permanent disability, though they may be quite painful on motion for a few weeks. Rest in bed may be sufficient, but a plaster jacket will add comfort and allow the patient to get about earlier.

Fractures of the articular processes and of the neural arch should be handled more carefully. If there is no cord injury, such cases should be promptly immobilized in a plaster jacket. If there is also a dislocation, as is more frequently the case in the cervical region, this should be carefully manipulated and reduced before applying

a plaster shell or jacket. The manipulations to be used for reduction of dislocation of vertebrae vary with the type of case and the region involved, and should not be undertaken lightly, especially in the cervical region.

In these cases, the spine should be immobilized in the straight or mid-position, neither flexed nor hyperextended. The posterior plaster shell is preferred for the high dorsal and cervical injuries, and can be easily applied from the top of the head to the sacrum as the patient lies on his face on an ordinary table. When the fracture is in the lumbar or lower two-thirds of the dorsal region, we use a complete plaster jacket. This can be applied either on a Goldthwait frame with face up or with face down on a longitudinal hammock of canvas or other strong material, drawn taut so as not to permit much hyperextension of the spine. If the body of a vertebra also is compressed, hyperextension, with traction while applying the cast, should be used.

Compression fractures of the vertebral bodies have, in the last few years, been the subject of much interest and study, and new methods of treatment have been employed with marked improvement in both anatomical and functional results. I refer to the hyperextension methods, all employing the same fundamental principle, but varying in certain details of technic. Leaders in this plan were Davis of Erie, Pennsylvania, and Rogers of Boston. Previously no consistent effort had been made to reduce these fractures and thus restore the shape of the vertebral body and correct the resulting kyphotic deformity of the spine. It was found that, due to the firm attachment of the intervertebral discs to the adjacent surfaces of the vertebral bodies and to the usually intact anterior common ligament attached to these bodies, full hyperextension of the spine would in most cases restore the thickness of the crushed body and reduce the fragments to approximately normal relations. This, of course, corrected the angulation of kyphosis of the spine which had previously been accepted as irremediable. Thus the added strain of a bad posture has been prevented and a better base of support preserved, resulting in less

arthritic symptoms and nerve root pains which so often plagued these patients the rest of their lives.

The method of Davis consisted of a combination of hyperextension and traction applied to the spine by means of a pulley and cords attached to the patient's ankles and pulling in an oblique direction as the patient lay face down on a table. Downward pressure on either side of the injured vertebra was used also in some cases to assist disimpaction and correction of the deformity. A long posterior plaster shell was applied and allowed to set. Then the patient was turned on his back, and an anterior shell applied, the two being held together by encircling straps. General anesthesia or profound narcosis was used. He employed this method of immediate correction only in patients with little or no nerve involvement.

Rogers' method consisted of gradual hyperextension on a convex stretcher frame, requiring five to fifteen days to get a maximum reduction of the deformity. Dunlap and Parker have described (1933) a method of immediate forcible reduction by hyperextension and traction and application of a plaster jacket with the patient supported on Goldthwait's irons. More recently Watson Jones of Liverpool has reported a series of cases treated by suspending the patient, without anesthesia or forcible manipulation, between two tables, allowing the body to sag of its own weight and thus correct the deformity by hyperextending the spine.

After trying the Rogers method of gradual correction on the convex frame and having much difficulty in preventing severe pain, even with narcotics, and in inducing the patients to remain on the frame, I began in the early part of 1932 to use a method of immediate reduction and application of a plaster jacket in hyperextension, to which I referred in my discussion of Dr. R. C. Robertson's paper before this society in April, 1933. At least two other Nashville surgeons have also used this method, and none of us have seen any ill effects, and the results have been most satisfactory. I had one patient who died suddenly of pulmonary embolism two weeks after a crushing frac-



ture of a lumbar vertebra which I reduced by this method. Of course, this complication may follow any fracture and its reduction by any method, or, in fact, without reduction.

Briefly, my method of treatment of these compression fractures is this: The patient is put to bed with a fracture board under the mattress to prevent sagging, and a pillow as thick as he can stand without added pain is placed transversely beneath his back to maintain extension or moderate hyperextension. X-rays are made at once if his condition permits, or later if there is much pain or shock. He is examined and watched for complications, such as nerve or visceral injury, and if these do not develop in a day or two, we then proceed with the reduction of the fracture and application of jacket, as you will see in the lantern slides. A large Bradford frame or, as demonstrated here, one end of a Balkan frame is used to support the longitudinal cloth hammock and cross straps, as in the usual method of applying plaster jackets in the prone position. This frame is placed on an ordinary table and the patient, wearing a stockinette shirt, is laid face down on the table. The cloth hammock is fastened or looped around the head end of the frame, then slipped downward under the patient (while tilted slightly to one side) between the shirt and his skin and tied, rather taut, to the foot end of the frame. One cross strap of strong cloth is fastened to each side of the frame to support the hammock under the shoulders and upper chest and another under the upper part of the thighs. Another cross strap may be placed under the legs. The patient is now anesthetized (in most cases), and the patient and frame are then lifted off the table and the ends of the frame placed on two supports, such as two high stools or small tables. One assistant grasps the arms near the shoulders, while another holds the feet and ankles. Longitudinal traction is then made gradually and firmly for a minute or so; then the feet are slowly raised, continuing the steady traction, until the lumbar and lower dorsal spine are fully hyperextended. The knuckle on the spine often disappears at once or after being held thus

for a moment. If it does not do so, the operator makes firm pressure on either side of the spine opposite the injured vertebra. Care is taken not to press on the spinous process or laminae in case they might be fractured and thus be pressed against the cord. The hammock is now made slack, as the patient's feet are lowered, and re-fastened at the foot of the frame, with just enough tension to give moderate support to the chest and abdomen as he lies with spine fully hyperextended, but without undue strain. After winding cotton sheet wadding around the whole trunk and hips and applying a large, thick felt pad over the back and iliac crests, the plaster jacket is applied, extending from the upper chest to well down over the hips. If the fracture is in the middle or upper dorsal region, an extension of the cast upward to include the back of the neck and occiput should be made. Other details, such as removal of the hammock, cutting an upper abdominal window, and, in some cases, bivalving of the jacket for inspection and treatment of the skin, need only be mentioned. The patient is returned to bed with one or two firm pillows under the back to relieve pressure on upper and lower ends of the cast. As soon as the cast dries, he can then be turned at will, and nursing care is an easy matter, either in the hospital or at home, as desired. We have had little or no unpleasant reactions following this procedure. I can see no more danger from this (except the slight, if any, anesthetic risk) than from the gradual method, if actual reduction is obtained. The pain has been far less severe and lasts only a day or two. The necessary period in hospital is less than a week, in most cases. This is often an important economic factor.

I have not used this method in cases with severe cord injuries, though I believe that if laminectomy is not indicated it might prove to be the best procedure. In these cases, it is almost impossible to prevent bedsores if the patient is kept on his back continuously, either on the convex frame or without it. The cast can be bivalved to permit care of the skin, and he can be turned at will to shift the pressure areas

frequently, without danger of movement and further damage to the spine.

I have reduced one case of mild compression fracture in this manner without anesthesia, using only one-fourth grain morphine to aid relaxation. I believe a considerable per cent of these milder cases can be treated thus successfully and with little pain. I doubt if all degrees can be so handled, as claimed by Watson Jones by his method. He also permits his patients to get up and about as soon as they wish after reduction and application of jacket. This seems to me rather dangerous. I insist on complete recumbency for at least seven or eight weeks, then the same or a lighter jacket is continued for another month or two, followed by use of a spinal brace until X-rays show firm healing and there is little or no pain on moderate exercise.

#### FRACTURE OF THE PELVIS

When pelvic fractures are not complicated by serious damage to other organs, such as the bladder, urethra, etc., their management is, in most cases, not very difficult. However, due to the usually violent trauma, such complications, together with associated injuries of other regions, are not infrequent and should always be carefully looked for when making the first examination. Rupture of the urethra, bladder, or other viscus requires immediate attention and should take precedence over the treatment of fracture.

The diagnosis of fracture of the pelvic bones may be made frequently by the presence of deformity, pain, tenderness, and possibly crepitus on manipulation and pressure, with inability to raise one or both legs. If the ring of the pelvis is completely broken, there will be severe pain on compressing or spreading the ilia on each side and on pressing downward on the symphysis pubis.

These fractures are frequently multiple or comminuted, and X-rays are essential to both accurate diagnosis and intelligent treatment in all cases.

In the past there has been much unnecessary treatment employed in the more frequent types of fractures of the pelvis. I

refer particularly to the use of plaster casts. Most cases are better treated without casts. In the simpler cases rest in bed and an adhesive plaster swathe, or better, a pelvic binder of elastic stockinette held in place by perineal straps, are more satisfactory. In the more severe types, also, casts have been largely replaced by a pelvic hammock and bilateral leg traction, as described by Conwell. This method is indicated particularly in fractures of the rami of pubes and ischium, those through the body of the pubes or wing of the ilium or, in fact, through any part of the pelvic ring. Where lateral pressure on the ilia is contraindicated, as it is in most cases, a spreader, somewhat wider than the patient's hips, is used to keep the hammock separated above the level of the patient. The Bradford frame is another useful and convenient method.

The question of reduction of displaced fragments is often a troublesome one. If the displacement is slight or even moderate in degree it is usually wise to let it alone. It is better to err in doing too little than too much. Union practically always occurs, even in the more marked cases. If the patient is a girl or woman of childbearing age, some consideration should be given to preserving the pelvic outlet, but even here it is not wise to endanger the pelvic viscera, urethra, etc., by rough efforts at reduction. Sometimes gentle manipulation through the rectum or vagina is helpful. If the femoral head is driven through the acetabulum into the pelvis, this should be reduced by lateral traction on the femur. This should be done cautiously, however, if the pelvic ring is broken through, at this or any other point.

Time will not permit further details of this subject. The most important points to remember are that every accident case which complains of pain about the hips or pelvis may have a fracture and should be X-rayed; that fractures of the pelvis are frequently accompanied by injury to the urethra, bladder, and other organs within the pelvis and lower abdomen; and that these complications should be discovered and given appropriate treatment at the earliest possible moment.



## REFERENCES

1. Davis, A. G.: "Fracture of the Spine." *Jour. Bone & Joint Surg.*, XI: 133, 1929.
2. Idem. *Amer. Jour. of Surg.*, XV: 325, 1932.
3. Rogers, W. A.: "Extension Frame for Reduction of Fracture of Vertebral Body." *Surg., Gyn. and Obst.*, L: 101, 1930.
4. Dunlap, Jno., and Parker, C. H.: "Correction of Compressed and Impacted Fractures of the Vertebrae." *Jour. of Bone and Joint Surg.*, XV: 153, 1933.
5. Robertson, R. C.: "Fracture of the Body of the Vertebrae." *Jour. Tenn. State Med. Assn.*, XXVI: 469, 1933.
6. Billington, R. W.: Discussion. *Jour. Tenn. State Med. Assn.*, XXVI: 473, 1933.
7. Jones, R. Watson: "Treatment of Fractures of the Spine." *Jour. Bone and Joint Surg.*, XVI: 30, 1934.
8. Key and Conwell: "Fractures, Dislocations, and Sprains." C. V. Mosby Co., 1934.

OPEN WOUNDS INCLUDING COM-  
POUND FRACTURES\*

C. F. WEBB, M.D., Jackson

The definition of a wound from the lay standpoint may be said to be an injury due to violence. It has been also defined, from a surgical standpoint, as a break in the continuity of the external surface of the body or of the surface of any of its organs. The latter definition would necessarily include incisions or other breaks in continuity from surgical procedures and is without the scope of this short paper.

Of the several kinds of wounds, namely, abrasions, the incised wound, contused wound, lacerated wound, punctured wound, avulsed wound, all are classed as open wounds, except one, and that is the contused wound.

Abrasions are superficial wounds, in which the epidermis and part of the dermis are rubbed off. Belts and pulleys may cause extensive abrasions, which may be treated as a burn. Of course, burns are open wounds, but will not be discussed except briefly as to treatment.

Incised wounds are characterized by clearly defined, even edges, and may be shallow, or there may be extensive division of underlying structures.

Lacerated wounds are irregular, jagged,

and result from a tearing of tissues. These may vary in extent from small uneven wounds to large mangled areas. These extensive lacerations do not, as a rule, bleed so freely as incised wounds, but are more prone to cause shock.

Avulsed wounds are those in which there is a tearing away and loss of tissue as of a foot or part of an extremity or of the scalp, where hair has caught in machinery.

Punctured wounds are those with a small external opening, but of relatively greater depth. There may be considerable damage to the underlying structures. They may be caused by nails, knife, bullets, ice picks, spike heads, etc. The hemorrhage is frequently of the concealed type and is not infrequently a cause of the development of a traumatic aneurism following primary recovery.

In a general way it may be said that the symptoms consist of pain, hemorrhage, and shock.

Pain may be negligible, as in abrasions and incised wounds, or severe, as in lacerated or punctured wounds, but will vary with the parts of the body involved and with the susceptibility to pain of the injured individual. Injury to parts richly innervated with sensory fibres may cause pain out of proportion to the extent and gravity of the wound, and in those regions less richly endowed, a more extensive and serious wound may cause little pain. Pressure from accumulated blood and serum may cause severe pain in a punctured wound, whereas, there may be little pain in an extensively lacerated or avulsed wound. The badly lacerated or avulsed wound usually causes shock, and a patient in shock will complain very little of pain, if any.

Hemorrhage may be open, or concealed, and may be capillary, venous, arterial, or a combination. Classified as to time, there is primary and most frequent, and secondary or delayed, which may occur several days following the injury and is due to sloughing from infection or necrosis due to pressure, as from a bone fragment or foreign body. In open hemorrhage, we recognize the persistent ooze of capillary bleeding; the bright red, spurting arterial blood and the dark, even flowing venous. In concealed

\*Read before the Tennessee State Medical Association. Nashville, April 9, 10, 11, 1935.

hemorrhage, we must depend on the classical symptoms of hemorrhage. These symptoms consist of increasing acceleration of pulse and later loss of volume, lowered blood pressure, roaring in ears, pupils dilated, pallor, thirst, restlessness, anxiety, and then extreme restlessness. Continuing, syncope, disturbances of vision, and air hunger, as shown by labored breathing, and there may be vomiting and incontinence. The symptoms are progressive and in proportion to the loss of blood.

**Traumatic shock:** The definitions of shock are almost as varied as the theories of its causation. As to the theories of shock, I am interested but not concerned, and whether the traumatic toxemia theory, or the adrenal, or the acidosis, or the inhibition vasomotor exhaustion theory is correct or a combination of them, it remains that the symptoms and the indications for the treatment have in a general way been agreed upon. Shock is most frequently encountered in extensive lacerated wounds, avulsed wounds, and mangled limbs in certain compound fractures, especially if multiple fracture. Rough or improper handling of an injured patient may produce shock or increase shock, and it is frequently found in a patient who has been transported without preliminary fixation, where it did not exist before, and might have been avoided.

The symptoms are extreme pallor, the lips pale, and nails blue. Cold sweat at times involving the whole skin area. Skin cold and clammy. Pulse is thready, blood pressure is low due to low blood volume, even where there has been little or no hemorrhage. There is subnormal temperature and thirst. The mental condition is one of apathy, but patient is conscious. In the later stages there may be extreme restlessness, and the patient may have to be restrained. Respiration is increased, vomiting is the rule.

Treatment is directed first to relief of shock and hemorrhage. Active hemorrhage must be controlled by clamp, ligatures, pressure, or tourniquet. The patient in shock is carefully stripped of any wet clothing; but if clothing is dry, it is not removed, as the required handling will only increase the

shock. External heat is applied—blankets, electric pads, or hot water bottles. Morphine is given in quantities sufficient to relieve pain and lessen anxiety. While there are wide differences of opinion as to the value of suprarenin, we are accustomed to its use, and when the case has not responded in a reasonable manner, follow with intravenous administration of saline solution. We get at least temporary improvement following saline, and if it appears that the effect is transitory, we prefer to follow this with a blood transfusion, if a matched donor is available. In a case where blood is not available, we use glucose solution and insulin. Fortunately, the treatment of shock and hemorrhage go hand in hand, except measures for control of hemorrhage. Flannin bandages on extremities may be of value in increasing circulating blood volume.

The treatment of open wounds, including compound fractures, will be governed by the condition of the patient and type of wound in each individual case.

The patient may or may not have had adequate first aid, that is, temporary control of hemorrhage — temporary splints where required. Morphine is given at once if the patient has not had it in sufficient quantity to relieve pain and anxiety. Treatment is then directed to relief of hemorrhage and shock if present, and its avoidance (shock) if not present. If shock and hemorrhage both are evident, bleeding is controlled by clamp, pressure, or tourniquet, as a temporary measure and our attention directed to the treatment of the shock. While this is being carried out we look around for possible donors for transfusion. Wounds are covered with sterile towels until shock has been overcome.

Abrasions are first thoroughly cleansed mechanically before anything else is done. Soap and water are used freely, and if grease is present, ether. After the abrasions are cleansed and dried, if not too extensive, we apply tincture metaphen or merthiolate, instead of iodine or mercurochrome, which is allowed to dry and no dressing applied, or if a dressing is thought advisable, Paresine lace mesh or oiled silk or perforated rubber tissue is used. In the



more extensive abrasions, as from a belt or rope burn, we may treat, following thorough cleansing, by spray of a solution of four parts five per cent solution tannin and one part solution merthiolate and not apply a dressing.

Incised wounds are cleansed mechanically before any antiseptic is applied. We do not pour iodine or other antiseptics in these wounds. Following superficial cleansing with soap and water, we cleanse the edges with a warm solution of bichloride of mercury. Then a solution of novocain is injected under the skin edges of the cut surface. Thorough mechanical cleansing can then be carried out and hemostasis effected. Any severed underlying structures are repaired with small catgut (except tendons, where heavy chromic or K. tendon is used). Avoidance of blind pockets where blood or serum may collect is desirable. In suturing, a nonabsorbable suture is used, and the suture is passed deep enough into the subcutaneous structure to get approximation of as large an area as is consistent with a smooth closure. This detail will avoid wide scars. Unless the wound is contaminated, no drainage is used. If there is suspicion of contamination or if the wound is not dry, rubber tissue or a few strands of silkworm gut may be used to drain. Sutures are removed early—from three to five days.

Punctured wounds, if inflicted with a clean, smooth instrument, and there is probably no contamination, are cleansed externally and left alone. Where contamination seems probable, the entrance wound is enlarged and the interior treated as conditions found may require. If there is hemorrhage, enough exposure is had to cope with the situation, and drainage is usually the rule. Antitetanic serum is given. If there is considerable damage to underlying structures, a counterdrain may also be used and gas-gangrene serum given.

Lacerated wounds, if small, are treated in much the same manner as incised wounds. The edges smoothed and devitalized tissue removed. A small tissue drain inserted. More extensive lacerated wounds are mechanically cleansed. If indications warrant, and there is no shock, a general

anesthetic may be used, cleansing the surface with soap and water, and the structure underneath with sterile solution, used freely. Following mechanical cleansing with sterile saline solution or water, the wound is flushed freely and thoroughly with some antiseptic solution. Debridement is carried out as thoroughly as possible, and these wounds if closed at all are closed very loosely. Debridement: incision if required should be longitudinal—skin and fascia conserved as much as possible. Uninjured nerves and vessels should be protected. Debridement should remove all devitalized tissue and embedded foreign bodies or bone fragments. Following debridement the wound is again flushed with an antiseptic solution and followed with saline solution. In certain large wounds, especially when thorough debridement is impractical, continuous irrigation by the Carrel-Dakin method is advisable. Antitetanic and gas-gangrene serum are given. In extensive laceration, where there is profound shock, effective cleansing and debridement cannot be carried out. It is my opinion that such cases, if probably contaminated, should have antitetanic serum intramuscularly and a therapeutic dose of gas-gangrene serum intravenously, or soon as it seems safe to run the slight risk of serum reaction.

Avulsed wounds of the extremities are treated in about the same manner as badly lacerated wounds, but the tourniquet may be used with more confidence, as amputation will be indicated as soon as shock subsides.

Amputation should proceed in mangled or avulsed wounds of the extremities as soon as general condition of patient will allow, even if guillotine amputation is necessary and a secondary closure made later.

Compound fractures are first treated for shock or hemorrhage if present, the wound meanwhile being covered with sterile dressing after having been treated with an effective antiseptic.

If a bone does not protrude and there is little apparent damage to the soft parts, and there is no shock, reduction and fixation early is the rule. If traction is to be used, this is begun early. Antitetanic serum given. In certain cases, upon operation,

debridement and mechanical fixation done primarily is desirable. When a bone has been exposed for some time and the wound is evidently contaminated, this is safer than watchful waiting. If there is no shock, X-ray examination is made before patient is put to bed, otherwise it is omitted and this examination is carried out later, preferably while in bed, using a portable machine. In cases where traction is used, checkup is made at intervals with the bedside unit and manipulated if required under fluoroscopic control.

### TRAUMATIC SHOCK\*

PERCY A. PERKINS, M.D., F.A.C.S., Memphis

Shock is no longer considered strictly a surgical problem, for in recent years the meaning of the word "shock" has been so broadened that it now covers states of acute circulatory failure found in purely medical conditions, such as certain pneumonias, chemical poisons, anaphylaxis, and other conditions with similar shock-like symptoms.

In this paper I shall not attempt to discuss in detail the many theories concerning the cause of traumatic shock, as that belongs in the field of those doing research work and experiments, but I wish to devote most of my time to the discussion of the prevention and treatment of shock from a surgical viewpoint.

No doubt, many of you who served in the late war had much experience with shock, but when some of your very own men died within a few hours after receiving what you considered minor wounds, then arose the perplexing question, as even now, "What is shock?" Shock is defined as low arterial blood pressure with diminished volume as a result of loss of blood plasma and stagnation of corpuscles in the capillaries.

Before discussing the treatment of traumatic shock, I think it well to review very briefly a few of the theories regarding this condition in order that we may have a better understanding of the therapeutic meas-

ures. Shock is classified as mainly primary and secondary.

The primary type comes on immediately after injury and may exist in any degree from syncope to collapse. It is due to a suppressed innervation and general atony of the cardiovascular system. There is low blood pressure, but no loss in volume, and there is a dilatation of the peripheral capillaries. The psychogenic and neurogenic types come under this classification.

Secondary or delayed shock comes on from one to several hours after the injury. Trauma with reference to shock is not necessarily confined to mechanical injuries, but may be inflicted on a body by bacteria or chemical poisons. Cold, pain, fear, dehydration, and hemorrhage may initiate or accentuate shock by stimulating the sympathetic system. The symptoms are low blood pressure, subnormal temperature, thready pulse, shallow respiration, apathy, bluish nails, pale, cold skin, and sweating.

The explanation of the cause of the low blood pressure and what becomes of the lost blood still remains unsettled, but many plausible theories have been advanced.

1. Nervous theory: The sympatho-adrenal mechanism is stimulated, causing a constriction of the cutaneous and splanchnic capillaries, at the same time a dilatation of capillaries in the skeletal muscles with consequent loss of plasma through the capillary walls, and stagnation of the corpuscles in the capillaries in the cutaneous and splanchnic area. The pooling of blood in the splanchnic area is proven a myth, as any surgeon who has operated on a patient in shock can testify. The continued stimulation of the adreno-sympathetic system leads to loss of plasma and blood volume, which means loss of oxygen to tissues and a state of anoxemia which causes exhaustion of the brain cells and vasomotor centers.

2. Toxic theory: This contends that in injured or crushed tissues there is produced by the decomposition of protein substance a substance similar in action to histamine. In proof of this are cited cases where tourniquets have been applied to a crushed limb and shock was delayed or prevented, but when the tourniquet was released after a

\*Read before the Tennessee State Medical Association, Nashville, April 9, 10, 11, 1935.



time the patients went into state of shock. It was also shown that the injured who had thorough debridement were much less prone to develop shock.

And again, experiments have shown that the loss of volume was due to accumulation of plasma and blood in the region of the injured part. The crushed leg of a dog in shock was amputated and shown to weigh more than the sound leg, due to the amount of fluid and blood accumulated in the traumatized area. This excessive loss of fluid means the loss of blood volume.

#### TREATMENT

The treatment of traumatic shock is the important part of the discussion that I want to emphasize in this symposium on traumatic surgery.

Prevention is the best treatment for shock. Fractures of the long bones and the head injuries probably offer the largest field for educational work in the prevention of shock. It is estimated that there are a million fractures in the United States annually, one-third of which are in the long bones. Every patient having a severe fracture is potentially or actually in shock. The American College of Surgeons is doing educational work in the care and treatment of fractures. A survey shows that at least 50 per cent of our ambulances are operated by the morticians and that only fifteen per cent are equipped with splints. During the late war the English reduced the mortality fifty per cent in fracture cases by adopting the use of the Thomas splint. We, as doctors, should attempt to educate the public, the ambulance drivers, policemen, etc., that they should not try to move a man with a broken leg or arm without first applying a splint, preferably a Thomas splint, which gives fixation and traction, and the patient should be kept warm while in transit to the hospital. The Red Cross and Boy Scouts are being taught the proper first aid treatment in cases of this type. Someone has advised that not only ambulances be equipped to handle these emergencies, but that filling stations on the highways should include first aid equipment and splints as part of their service.

Next in importance is the care of head

injuries. See that these patients are put to bed, made comfortable, and kept warm. Do not permit them to be disturbed by having X-ray examinations on admittance to the hospital. That can wait. It is the injury to the brain, and not the fracture, that counts. Admittedly, it makes a big hit in a lawsuit to be able to show to the jury a crack in the skull. After all, the conservative treatment of head injuries is best. The mortality in one of the large hospitals has been reduced from 52.1 per cent to 21.7 per cent by the conservative method of treatment.

Do not operate on a patient while he is in shock. Wait for reaction. Some state that if the blood pressure is below ninety it is very unwise to operate, however, in certain types of injuries, such as a fractured pelvis with injury to bladder or urethra, or concealed hemorrhage, when operation is imperative, it has been my custom to precede the operation by infusion of glucose ten per cent and adrenalin while the blood is being typed and then by blood transfusion. The anesthetic of choice is gas and oxygen with local anesthesia.

The routine treatment is keeping the patient warm by use of hot-water bottles and blankets, giving morphine for relief of pain and for relaxation (the exception being head injuries), elevation of the foot of the bed, and often bandaging of the lower extremities. Increase the volume by infusions or transfusions. The increase in volume inhibits the adrenal secretion. Dr. Collier says that about 1,000 cc. of fluid is lost during an operation and the first four hours after and that the basic fluid requirement daily is about 3,000 cc., so in order to keep the proper fluid or water balance, the patient must get at least 3,000 cc. daily. The fear of embarrassing the heart by giving saline or glucose infusions is unfounded. Infusions given at the rate of 1,000 cc. in thirty minutes mean only six minims passing through the ventricle at each systole. The normal heart muscle has been proven very resilient, and increasing the volume seems to improve its tone. Some advocate salines and glucose intravenously by continuous drip method, but others say there is danger of damaging the vessel walls

and producing an embolus. The crystalloid solutions of sodium chloride and glucose shorten the coagulation time. The slight increase in blood pressure by the use of glucose and saline does not increase bleeding. Nature is the perfect machinery and is able to stabilize itself especially as to blood pressure and dilutions. There is probably very little nutritive value to the glucose; however, in shock this is of little importance as in shock the blood sugar is normal or slightly elevated. Saline and glucose solutions are retained only a short time in the blood vessels, less than an hour. Six per cent gum acacia in nine-tenths per cent saline solution is retained longer than saline on account of colloidal properties, and has osmotic powers that enable it to attract fluids from the tissue. The blood transfusion, in my experience, is best of all. Not only does this increase the volume and oxygen content, but the protein content of the plasma enhances the osmotic process. Watch your patient and take frequent blood pressure readings and do not postpone treatment too long. A blood pressure of eighty or less for more than an hour does irreparable damage, especially to cortical nerve cells, and the patient will eventually succumb. Drug medication is valuable in primary shock, but of less value in secondary shock, as in the latter we need volume instead of increased blood pressure. Caffein, epinephrine, cortin, and ephedrine are the most commonly used. Cortin, or eschatin (the cortical hormone), is proving much more effective than epinephrine (adrenal hydrochloride). The action of ephedrine is more prolonged than epinephrine, but is uncertain and tricky, and will often produce the opposite effect from that desired. Its use in combating the low pressure accompanying spinal anesthesia has been discontinued by some surgeons.

#### SUMMARY

Prevention of shock is the best treatment—(a) by application of splints with fixed traction before attempting to move the patient ("splint them where they lie"), (b) by use of morphine to relieve pain and tension ("morphine is the sheet anchor"), (c) by keeping the patient warm.

Blood transfusion with adrenalin or preferably adrenal cortical extract (cortin or eschatin) will save many patients who otherwise would be lost. The anesthetic of choice in the operative cases would be gas and oxygen together with local anesthesia. Spinal anesthesia obviously is contraindicated in traumatic shock.

#### REFERENCES

- Atchley, D. W.: "Medical Shock." *Jour. Amer. Med. Assn.*, vol. 95, p. 385, August 9, 1930.
- Coller, F. A., and Maddock, W. G.: "The Water Requirements of Surgical Patients." *Annals of Surgery*, vol. 98, p. 952, November, 1933.
- Howell, W. H.: "Textbook of Physiology." Twelfth Edition, p. 583, W. B. Saunders Company, Philadelphia, 1933.
- Starling: "Principles of Human Physiology." Sixth Edition, pp. 99-104. Edited by Lovatt Evans, J. and A. Churchill, London, 1933.
- MacFee, W. F.: "Physiological Considerations Related to the Infusion Treatment of Shock." *Annals of Surgery*, vol. 100, p. 266, August, 1934.
- Freeman, N. E.: "Hemorrhage in Relation to Shock." *Annals of Surgery*, vol. 101, p. 484, January, 1935.
- Cannon, W. B.: "The Wisdom of the Body." W. W. Norton and Co., Inc., New York, p. 41, 1932.
- Blalock, A.: "Acute Circulatory Failure as Exemplified by Shock and Hemorrhage." *Surg., Gyn., and Obst.*, vol. 58, p. 551, 1934.
- Cannon, W. B.: "Traumatic Shock." D. Appleton and Co., New York, p. 63, 1923.
- Crile-Lower: "Anoci Association." W. B. Saunders Co., 1914.
- DaCosta: "Shock." *Modern Surgery*, p. 186.
- Reid, S. C.: "Traumatic Shock in Adrenalectomized Rats." *Proceedings of the Society for Experimental Biology and Medicine*, 1932-33, p. 677.
- Wiggers, C. J.: "Physiology in Health and Disease." Lea and Febiger, 1934.
- Milbert, A. H.: "Infusion Reactions." *Am. J. Surg.*, vol. 26, p. 479, December, 1934.
- Freeman, N. E., Morrison, R. S., and Sawyer, M. E.: "The Effect of Dehydration on Adrenal Secretion and Its Relation to Shock." *Am. J. Physiology*, vol. 104, p. 628.
- Babcock, W. W.: "Resuscitation in Abdominal Surgery." *Am. J. of Obs. and Gyn.*, vol. 6, August, 1923.
- Freeman, N. E.: "A Novel Explanation of the Secret of Traumatic Shock from Biological Laboratory of Princeton." *Science*, February 24, 1933.
- Nelson Loose-Leaf Surgery: "Relation of Blood Pressure to Shock," vol. 1, pp. 64-66.
- Kennedy, R. H.: "The Transportation of Early Long Bone Fractures." *Surg., Gyn., and Obs.*, vol. lviii, February 15, 1934.
- Cannon, W. B.: "A Consideration of Possible Toxic and Nervous Factors in the Production of



Traumatic Shock." *Annals of Surgery*, vol. 100, October, 1934.

Phemister, D. B.: "Primary Shock." *Annals of Surgery*, vol. 100, October, 1934.

Heuer, G. J., and Andrus, Wm.: "The Effect of Adrenal Cortical Extract in Controlling Shock Following the Injection of Aqueous Extracts of Closed Intestinal Loops." *Annals of Surgery*, vol. 100, October, 1934.

Blalock, Alfred: "Experimental Shock. The Cause of the Low Blood Pressure Produced by Muscle Injury." *Arch. Surg.*, vol. 20, p. 959, 1930.

Senger, Wm., and Norman, J. S.: "One Thousand Consecutive Fractures of Both Bones of the Leg." *Surg., Gyn., and Obs.*, vol. 60, February, 1935.

#### DISCUSSION

DR. DUNCAN EVE, JR. (closing): In regard to the splints in transporting the patient with fractures of the extremities, the United States Army, New York City, Philadelphia, Minneapolis, the Great Northern Railway Company, and a gradually increasing number of other organizations have seriously attacked the problem of first aid in fractures and have adopted the Thomas-Murray hinged splint for upper extremity fractures and the Keller-Blake hinged half ring splint for lower extremity fractures. These two standard splints are shown in the last edition of the *Outline of the Treatment of Fractures* which is published by the American College of Surgeons. These are the splints. Each of these splints costs \$7.50.

On the N. C. & St. L. R. R. we have found that these standard splints can be made in our shops at one dollar and twenty-five cents per pair, however, if padded, twenty-five cents more.

The Great Northern Railway and several other large railway systems have these splints at every important station.

I am sure in time all ambulances will be equipped with these splints.

DR. R. E. SEMMES (Memphis): I would like to agree with Dr. McKinney that in the management of head injuries one should not rely upon any system or routine, but upon definite indications based upon an understanding of intracranial mechanics and physiology.

In recent years we have come to think of head injuries in two groups: the first, those produced by the patient being struck upon the head by some tool or weapon—it does not matter whether it is a pistol butt, a coca-cola bottle, a monkey wrench, or a baseball, the mode of production is the same. There is an injury to the scalp, a pushing in of the skull until it breaks (depressed fracture), local brain damage, and maybe bleeding from injury of some vessel either in the meninges or on the brain.

These patients have no general brain injury, and the problem is one of mechanics. As a rule, we need only debride the wound, remove the broken

bone temporarily, attend to hemostasis, close the dura, and replace the skull. It is not necessary to leave defects in the skull. Closure should be without drainage. This will restore the patient without any infection in about ninety-five per cent of cases.

In the second type of production of head injuries, that is, in which the patient falls upon his head or is thrown from a rapidly moving car or in any way strikes his head on a solid plane surface—usually the highway—the skull is flattened, just as a golf ball when struck by a club, until it cracks. Here we may also have local laceration of the brain at the point of impact and at the opposite pole—"contra coup." The significant thing is that the entire brain is sloshed, "commotio cerebri," which affects the entire brain.

Here the problem is mainly that of pathological physiology, and it is a situation where we can only watch the patient most carefully, examine him repeatedly, and manage the pathological physiology as indicated. We may do nothing at all; we may have to use various means of controlling the intracranial pressure principally by the methods which have just been described, very rarely by decompression. Here, however, the main benefit comes not from opening the bone and the dura, but from continued drainage of the subarachnoid space.

Dr. McKinney spoke of the things not to do. I would like to supplement some of the things which he had to say, particularly that the patient must not be allowed to lie on his back. So frequently we enter the hospital and hear the patient snoring and find him cyanotic. Cyanosis which means anoxemia of the brain, will greatly increase the swelling and intracranial pressure and add to the patient's difficulties. All that needs to be done is to turn him on his side. You don't need an airway or tongue forceps or any other kind of device.

The use of morphine has largely been discontinued because of the fact that it increases intracranial pressure and further embarrasses the respiratory centers, and incidentally does not do much good because the mechanism through which it works is usually out of commission.

We do punctures only with great caution and under certain conditions. We do not believe in routine use of lumbar puncture, which may favor a foraminal hernia and sudden respiratory death; in fact, we have seen it do so on several occasions.

The limitations of lumbar puncture are obvious, because as soon as the intracranial cavity is filled with swollen brain there is very little free fluid which may be withdrawn.

Magnesium sulphate is very useful, given by mouth and by rectum. Some prescribe it by vein. Of course, it has a certain colloidal chemical effect that hinders edema, but it does not do anything in the way of dehydration because the amount necessary to accomplish this purpose would

be certain to kill the patient from respiratory failure. It may be used without this danger in very small amounts.

We do not agree with Dr. Perkins that the patient should have gas anesthesia. It raises the intracranial pressure considerably and increases the danger of hemorrhage. The same, of course, is true of ether. All procedures should be done, if possible, under local anesthesia and with some of the barbitals.

I am glad to see that nearly every one mentioned the fact that the brain is the important thing in head injuries.

DR. R. Z. LINNEY (Nashville): The subject of cranial trauma is always an interesting one, and particularly is this true when we consider treatment. There are still, roughly classified, three schools of thought as to what constitutes proper therapeutic management. These three groups might be named the conservatives, dehydrationists, and the surgical decompressionists. The conservative group believe in preventing primary shock and then allowing nature to take its course, and unless one has had experience with these cases this is not an unwise course to follow. The surgical decompressionists still believe that they can save as many lives by early operative relief of pressure and further contend such treatment greatly reduces the too frequent posttraumatic syndrome.

The dehydrationists claim a lower mortality and an equal reduction in posttraumatic sequelae, and if this form of treatment is properly understood and carried out they are correct in their contentions.

As in many surgical and medical problems, the failure of complete understanding of the pathologic physiology prevents proper therapeutics. Too many regard head injuries in terms of fractured skulls. Patients do not die from skull fractures, but shock kills, edema kills, and hemorrhage kills. Whether we have or do not have increased intracranial tension is important, because too great a tension alters the adequate blood supply, and this in turn interferes with proper oxygenation of the cells of the brain. Momentary anoxemia results in damage or death to brain tissue.

I quite agree with Dr. McKinney and the others in the management of the immediate shock part of the cranial trauma.

However, I do think the spinal puncture does have a place in the treatment of these cases, particularly where we have continued bleeding that lasts over two or three days; by replacing some of the fluid with air we not infrequently can stop that hemorrhage.

However, the main thing is the use of dehydration therapy, and this is not only important while the patient is in the acute stage, but also in the convalescence after the patient returns home. To allow a patient to become waterlogged after he has apparently recovered only invites further trouble.

DR. T. D. MCKINNEY (Nashville): I simply wish to thank the gentlemen for their discussions and the members of the association for their patience in listening. I might comment on the remarks I made in regard to the use of the decompression operation. It is performed in cases with increased pressure and is designed to lower the intracranial pressure by drainage of cerebrospinal fluid and affording a slight additional space for the brain to bulge. The very fact that the brain bulges through the bony defect and the opening in the dura obliterates the subarachnoid channels at the margin of the defect, thus defeating the purpose of drainage. The cerebrospinal fluid after a very short time is blocked off by the swollen brain herniating through the dural and bone defects. For this reason, in the acute edema cases, in my opinion, the effect is only very transitory in character.

DR. A. H. MEYER (Memphis): Mr. President and Gentlemen: Dr. Billington is certainly to be congratulated upon the simple, concise, and thorough expression of his subject. The question of fractures of the spine is extremely important, and the present-day method of treating these spines with hyperextension is also extremely important. It is most important from the industrial standpoint, because the present-day method of treating spines does two things from an industrial angle: First, it limits the amount of convalescence, and, secondly, it limits the amount of partial permanent disability.

Viewing the situation from that particular angle is an extremely important matter to those who are interested in compensation insurance. To those patients who are not interested in that end the fact that they are restored to a state of physical well-being is also important. Therefore, I should like to stress this one feature, that, with those men who are culpable and guilty of not treating a spine today by the more or less improved methods, the matter is one of criminality.

There was one other point that Dr. Billington brought out and which in my own mind I settle in this manner. That was the question of ambulation. If my fracture is in the anterior portion of the body of the vertebra, after reduction or shortly afterwards, I permit my patient to get up and walk about. If the fracture is in the posterior portion of the body of the vertebra or involves the articular facets or the neural arch, then I keep my patient in a reclining position for a period of time.

DR. J. J. ASHBY (Nashville): Mr. Chairman and Gentlemen: I just want to make one or two points. First, I want to say that there has been a great improvement in the treatment of fractures in the last six or seven years with the treatment by hyperextension. This is carried out in various ways, all embodying the same principle of hyperextending the spine beyond its normal extension. I want to stress that extension must be beyond



the normal in order to get correction of the depressed vertebra by putting the pull upon the ligaments between the vertebral bodies and upon the intervertebral disks.

I have used the gradual extension method, also the method used by Dr. Billington, which I think gives better results in the uncomplicated cases and which is more satisfactory from the standpoint of the patient, because he has less pain.

There have been two methods brought out recently which can be used where there is no great amount of equipment and where you want to use gradual hyperextension. One of them is to turn your patient's feet to head of bed with his back over the knee rest of a Gatch bed and gradually hyperextend by raising the knee rest, and the other is the use of an automobile jack on each side of the bed on chairs with a two by four pushed underneath the mattress. You can gradually hyperextend in that way, and then when hyperextension is obtained (by that I mean overextension of the spine), a plaster cast is applied, and the patient kept in bed for varying periods of time or allowed up, depending upon the fracture. I agree with Dr. Meyer pretty well about that. The more severe cases should be kept in bed at least two months.

DR. R. W. BILLINGTON (closing): I thank Dr. Meyer and Dr. Ashby for their discussion. I have been afraid, to tell you the truth, to let these patients get up and walk around, sit up, or be ambulatory very early after reduction of these fractures. I know that it is being done, but I also know that it is sometimes impossible to see fractures of the neural arch, the articular processes, and the laminae in the X-rays. You study the X-rays and they may not seem to be, and yet they may be. I think we take a certain amount of risk in getting the patient up the first month or six weeks after these injuries. It is just a matter of playing safe. The majority of them would probably get along quite well if you let them up much earlier, but for the sake of those that may have this additional injury to the neural arch, I think it is certainly safer to keep them in bed for seven to eight weeks.

There has been a good deal of discussion and argument as to the safety of the immediate correction by the Davis method, or the method that I have used here, and similar methods, such as that of Watson Jones and the one described by Dunlop and Parker. If you will follow the careful procedure which I have attempted to describe and to demonstrate on these slides, I can see no more danger to your patient in reducing your fracture (that is what you are doing) in this short period of time than reducing it by gradual, continual straining and stretching over a period of ten or fifteen days as by the Rogers' method on the convex stretcher frame.

I wish to emphasize, however, the necessity of doing this procedure carefully, applying the traction from both ends of the patient, first in the

horizontal position; then after your assistants have considerable amount of traction applied (it does not have to be estimated accurately; pretty good, stiff, firm traction, no jerking), while you are making traction, lift the feet up until you get the full hyperextension. When the patient reaches what you estimate is the normal limit of hyperextension of that patient of that age and type of build, if the knuckle has not disappeared, then you make firm pressure with the hand cupped over the injured vertebra. Then the patient is laid down gently, carefully, and rests there and is not moved at all until after the cast is applied. The pain the patient has is usually not severe and only lasts for the first day or so, and after that he is quite comfortable and can be rolled around in bed and can be taken home. Usually the period in hospital in the average uncomplicated case is not necessarily more than five or six days or a week. This method certainly has a great advantage from the standpoint of the patient's comfort and of expense.

DR. R. R. BROWN (Nashville): There has been so much this afternoon that I would love to discuss that I hate to be limited to just the discussion of the treatment of open wounds. I am sure that the papers as well as the discussions have overlapped enough that it is not necessary for me to review all of them.

I would like to stress, though, the value of cleansing the big wounds, including fractures, mechanically rather than attempting to do it chemically with any of the antiseptics ordinarily used. These large, extensive wounds should be cleansed mechanically in addition to the part being shaved in its entire circumference. If you will treat them this way, you will prevent a lot of the infections that occur later on with the resultant osteomyelitis complicating the fracture.

If ends of the bones when stuck out of a compound fracture or coming through the skin are covered with dirt and foreign material, I think a mechanical cleansing or removal of this should be attempted before the fracture is reduced. Even in the immediate splinting for transportation purposes, it is best to apply a liberal dressing and wait until the end of the bone can be cleaned mechanically before it is reduced. This will lessen materially the number of infected cases that occur later on.

In your compound cases that have a small wound, please do not drain them. I have seen this done a number of times, and I believe it is the surest way to get an infection later on. Put a simple dressing over the wound and seal it as soon as possible. The chances of infection are much less than if you leave it open. On the other hand, in extensive wounds, by doing a definite debridement, removal of the dead, traumatized tissue, leaving the wound open, using Dakin's or the necessary wet dressing, you will prevent the subsequent infection that is sure to happen if you leave

***Program***  
**SECOND ANNUAL MEETING**  
**THE SOUTHEASTERN BRANCH SOCIETY**  
*of the*  
**AMERICAN UROLOGICAL ASSOCIATION**  
**NASHVILLE, TENNESSEE**  
**December 6 and 7, 1935**  
**NOEL HOTEL**

***Officers***

DR. EDGAR G. BALLENGER . . . . . *President*  
DR. HENRY W. E. WALTHER . . . . . *President-Elect*  
DR. EARL FLOYD . . . . . *Secretary-Treasurer*

***General Information***

Make your hotel reservations early, through the manager, Noel Hotel, Nashville, Tennessee.

All scientific and business sessions will be held at the Noel Hotel.

Members, their families, and guests will please register at the registration booth on Friday, December 6, between nine and one. *No registration fee is required.*

Arrangements have been made at the Woodmont Country Club for golf on Friday morning and Saturday afternoon, free to all visiting doctors.

Luncheon will be provided at 1:00 P.M. on Friday and Saturday, for doctors and their wives. Banquet and entertainment 7:00 P.M. Friday, Noel Hotel. Tickets for these events will be issued at the time of registration.

There will be entertainment for the ladies Friday afternoon. Free bus trip to the Hermitage and the Parthenon Saturday afternoon, admissions paid, for all who care to go.

All reputable physicians and their wives are cordially invited to attend the scientific and social sessions.



## *Scientific Program*

**Friday, December 6, 1:00 P. M.**

**ASSEMBLY ROOM, NOEL HOTEL**

1. DR. MONTAGUE BOYD, Atlanta, Ga.: "The American Urological Association and the Branch Societies; History and Activities."
2. DR. WM. BRAASCH, Mayo Clinic, Rochester, Minn.: "The Value of Excretory Program as an Indication of Renal Function."
3. DR. ROBT. HERBST, Chicago, Ill.: "Vesicointestinal Fistulae, Resulting from Foreign Bodies in the Bowel."
4. DR. BURNETT W. WRIGHT, Los Angeles, Calif.: "Urinary Complication in an Epidemic of Poliomyelitis."
5. DR. HUGH CABOT, Mayo Clinic, Rochester, Minn.: "The Methods of Diverting the Urine above the Level of the Bladder, with Particular Reference to the Problems of Technic."

Banquet and entertainment, 7:00 P.M., Noel Hotel, ladies included.



**Saturday, December 7, 9:00 A.M.**

6. DR. WM. E. LOWER, Cleveland, Ohio: "The Problem of the Fused Kidney."
7. DR. A. I. FOLSOM, Dallas, Tex.: "Pyelitis in Children."
8. DR. GEO. GILBERT SMITH, Boston, Mass.: "Total Prostatectomy for Cancer of the Prostate."
9. DR. JOHN H. MORRISSEY, New York: "Reflex Bladder and Rectal Innervation and Its Relation to Urological Symptomatology."
10. DR. THOS. J. KIRWIN, New York: "The Present Value of Electrical Methods in the Treatment of Certain Urological Conditions."

it alone. It is much better to attempt to cleanse them mechanically and prevent this infection than it is to treat the infection and get a complicated osteomyelitis later.

DR. C. F. WEBB (closing): I just want to comment on the harmony of the discussion. It seems that while there may have been one or two minor protests, there has been no vehement protest or viewing with alarm. It seems we have a lot of "yes" men.

There is one thing I want to thank Dr. Brown for bringing out, and that is the mechanical cleansing. I think that is one of the most important parts in these cases—mechanical cleansing and debridement.

I purposely left brain injuries out of my paper because I knew there was one coming ahead of it on that subject.

There is one thing that I do want to call attention to, and that is the frequency with which we encounter gas gangrene infection. I think that the mechanical cleansing as early as shock will permit or recovery from shock will permit, debridement, and intravenous use of gas gangrene serum in therapeutic doses and not immunizing doses is the treatment.

If I might just for a moment report a recent case in which we had a gunshot wound of the knee. The boy was in primary shock, and of course we could not operate immediately. After he recovered from the shock, amputation was advised and refused. Two days later he had gas gangrene, and he had the brownish mottled appearance extending up on the left lower quadrant of the abdomen, and the crackling in the abdomen showing gas in the tissues. Obviously we could not get up there, so we did a guillotine about the middle of the thigh. We did not get all of the infected tissue, of course. We gave him intravenously twenty cc. of gas gangrene serum immediately, 600 cc. of blood, twelve hours later 600 cc. of blood, another intravenous gas gangrene serum, twenty-four hours later 600 cc. of blood and intravenous gas gangrene serum, and the fourth one twenty-four hours later, with recovery.

On the other hand, we had a recent case of a crossing accident in which a woman was injured. She had numerous lacerations of the scalp and face, arms and limbs, but no injury that would have proved fatal in itself. She was in shock when brought in, probably had primary shock. We gave tetanus antitoxin, cleaned her up as well as we could, and gave gas gangrene in a prophylactic dose, but failed to give it intravenously. She did not recover from shock sufficiently to do a debridement, although the wounds were not very extensive, and she developed gas gangrene extending very rapidly in thirty-six hours, and we lost the patient. I shall hereafter give therapeutic doses of gas gangrene serum in those cases.

DR. JARRELL PENN (Knoxville): Mr. Chairman and Gentlemen: I first want to say that I appreciate very much the program committee's effort to get together a symposium of this nature. I think it has been very instructive to all of us, and I, for one, have enjoyed each of the papers.

Dr. Newell spoke of the impossibility of even beginning to touch on the principles involved in the treatment of fractures of the long bones in so short a period as twenty minutes, and when this time is cut to five, you can realize that there is still less possibility of saying very much about the subject.

There are three fundamental principles involved in the treatment of all fractures of the long bones, regardless of their location, situation, type or what not. The first of them is approximation of the fragments; second, correction of deformity; third, adequate immobilization until union has had time to take place. If these three principles are adhered to, one may expect as satisfactory results as possible in any fracture of the long bones. There are three main groups of methods of treatment by which these principles may be accomplished. First is reduction by bloodless manipulation and the immediate application of a suitable splint. This is, of course, the method of choice in all fractures in which it can be applied. All manipulation is done at a single operation, the splint is applied, and the remainder of the treatment simply consists of convalescence until union has taken place.

Where this method of treatment can be applied, some form of anesthesia should be employed, either general or local, first to reduce pain and shock, and second to secure sufficient muscle relaxation to reduce the fracture.

There are a certain per cent of fractures, however, in which a satisfactory reduction cannot be secured by bloodless manipulation, and treatment along other lines must be instituted. The second method is that of traction, and is applicable to a certain number of fractures in which satisfactory reduction cannot be secured by manipulation. Traction may be applied to the skin or directly to the skeleton itself. Skin traction is quite suitable, as Dr. Newell stated, in children. I do not think that skin traction is of as much value as skeletal traction in adults, however, as it is frequently necessary to apply so much weight that the adhesive tape slips or the pull on the skin is quite uncomfortable. Skeletal traction may be obtained by any of the various appliances that Dr. Newell spoke of, the Kirschner wire, Steinman pin, calipers, etc., the traction being put directly on the injured bone, or in some cases, through a joint on another bone; for example, sometimes the pin is passed through the os calcis in treatment of fractures of the lower end of the tibia, and adequate traction is applied to overcome muscle spasm. The long bones are all encased in a tube of strong musculature, and if the overriding of the frag-



ments is corrected by traction in the long axis of the bone and all opposing muscles are relaxed, as the gastrocnemius in fractures of the lower end of the shaft of the femur by flexion of the knee, this strong muscular tube has a marked tendency to compress the fragments back to their normal apposition.

I think the traction should be applied as soon after the injury as possible. With skeletal traction, a general anesthetic is not necessary as a rule. The traction apparatus can be inserted with a local anesthetic and the reduction is gradual. The position of the fragments should be checked by X-ray examination twenty-four or forty-eight hours after the traction is applied, in order to determine whether or not there is sufficient or too much weight, and the position of the fragments. Pressure pads may help in approximation of the fragments if the muscular tube itself is not strong enough to reappose the fragments.

The third method is that of last resort, and applicable only in those cases in which the other methods fail to secure satisfactory reduction, and that is, of course, open operation. All of us realize that as little trauma should be done in open operation as possible. Sometimes I think it is necessary to use some form of internal fixation, preferably not a foreign material.

We are seeing more and more in our literature of the ambulatory treatment of fractures of the lower extremity by the double pin fixation method; that is, inserting a pin into both the proximal and distal fragments of the injured bone. The fracture is then reduced and a well-fitting plaster of Paris cast applied, incorporating a walking heel in the cast to allow weight bearing after the first five to eight days. Up to date I have not allowed this early weight bearing, but I have found the double pin method of fixation very satisfactory in the treatment of certain fractures of the lower extremities, especially those of an oblique nature where the fragments cannot be otherwise engaged.

DR. WILLIS C. CAMPBELL (Memphis): Dr. Newell has given us one of his classical common-sense papers on fractures of the long bones, which he usually does. Fractures of the long bones can be reduced in fully ninety per cent of cases by simple manual reduction, then maintenance of reduction until union is solid, with careful attention to conservation of function of the adjacent joints.

In the treatment of fractures we must give due regard to the physiological principles involved in bone repair. We must have an area of stasis between the points of fracture in order to obtain maximum healing in a minimum time. This is present in the form of a blood clot.

Surrounding this area there must be an area in which there is active circulation. Now any factor which disturbs either, such as manhandling the part, repeated reductions, or operative procedures where we tear loose the soft tissues from the bone, prevents repair by impairing the very

forces of nature by which we expect to obtain union.

Another fact that I want to bring out particularly is that in skeletal traction we may very frequently defeat the purpose of the procedure; with skeletal traction we can use very powerful force. Dr. Newell illustrated in his splendid cases quite a number which he had reduced in this manner. He cautioned you regarding overtraction. I want to emphasize that point. Whenever there is overtraction to any degree or where traction is continued over a long period of time, you are going to have delayed union in practically every case, and it is a measure which should only be used by those who can employ it with efficiency and understand the method thoroughly.

Another point which I would like to emphasize in the treatment of fractures, which has been splendidly brought out by Dr. Eve and also by the splendid paper of Dr. Perkins, which is a most common-sense paper on this subject, is the question of transportation of patients. I think the general practitioners all over the country should first learn the principles involved in simple splinting; splinting with some material which may be at hand if they have not the apparatus which has been illustrated by Dr. Eve. These splendid splints are the best that we can possibly get and should be employed whenever possible, but many times fractures occur where we are a long distance from offices, where we are called suddenly, and splints are not available. I think every doctor should understand efficient measures of splinting each part of the body by improvised splints.

DR. E. DUNBAR NEWELL (closing): Someone asked me the other day what I thought was the most important thing in connection with treatment of fractures and I said, "The knowledge of the physiology of the repair of fractures," just as Dr. Campbell has brought out so vividly just now. The physiology of the repair of fractures is the most important thing that a surgeon should know. If he does not understand the physiology of the repair of fractures, he cannot do satisfactory work.

There is another thing. We have had in these 6,000 fractures only four nonunions. They were all in healthy white males. There was one nonunion of the tibia, two of the humerus, and one of the radius. There was no nonunion among the Negroes. In no case have we done anything except to get as near perfect apposition as possible and hold it in apposition and give the patient ordinary nutrition diet and rest and contentment. We have not used any other agency whatever to get union. We do not feel that there are any other agents that are necessary to get union except good apposition and continued immobilization.

We begin, just as soon as possible, active motion, even when the patient is in a Thomas splint with skeletal traction. After the first few days, we insist upon the patient moving his ankle and mov-

ing the muscles of his thigh and moving the muscles of his leg. We think that that prevents later atrophy and prevents ankylosis of the adjoining joint, and after the traction has been removed and the patient taken out of the splint we encourage the patient in his own active movements. If massaging does any good, it is simply to stimulate the patient to active motion himself.

We find that the railroad men are the best of all patients because they want to get back to their jobs; they cooperate actively; they will do what we tell them to do; and if they cannot work they will play at active motion.

The next best patients are the children, and the worst of all patients are these bums who have compensation cases; they do not care much for their jobs, and they are just looking for compensation or looking for some insurance or some fee from a lawsuit.

It is almost impossible in our experience to get good functional results in a case of serious injury where we have not the cooperation of the patient. The most essential thing next to knowing the physiology of the repair of fractures is to get the active cooperation of your patient. Without that it is most difficult to treat the bad fractures.

There is just one other fracture that I did not get a chance to show you in which I am so much interested and we see so much, and that of course is Colles' fracture, the most frequent of all fractures. Until a few years ago I thought it was necessary to use some special form of apparatus to hold these fractured ends together. After seeing Bohler in Vienna work, and the type of splints he uses, I have adopted his method. I reduce these fractures under ether anesthesia. I formerly reduced them under gas anesthesia and local anesthesia, but I do not get the perfect relaxation except with ether anesthesia. Now I reduce them all where there is much impaction under ether anesthesia, and try to do it within one minute at least so as to make as little manipulation as possible. With just two movements I attempt to reduce them, and we usually do it in two movements. Then we put on an anterior and posterior moulded plaster of Paris splint extending from the knuckles to within two inches of the elbow. For the first two or three days these patients carry the arm in a sling, but after the first two or three days, after the edema and swelling have disappeared, these patients are encouraged not to carry the forearm in a sling, but to use it freely and to use the fingers freely. During the six years I have been using the Bohler method (and we have had numerous cases of fracture in old people), I have not had a single one that I have treated that has had practically any loss of function in the wrist joint with any loss of function in the flexion or extension of the fingers. The splint is kept on for two months; immobilization is kept up for two months.

To you men who have not tried that method I recommend it, and you will be very much pleased, not carrying the forearm in a sling, allowing them

to use it freely, and after the first three or four days using the fingers at the table in eating, in dressing, or in any way they want to. We rarely look at these splints except just to come in and observe them and put a new bandage over the top of them, and they are kept on for a month; at the end of the month they are taken off and the arm is gently massaged or cleansed and the splint put back on, being kept on for two months in all.

DR. ALFRED BLALOCK (Nashville): I have enjoyed very much the excellent paper by Dr. Perkins. It seems to me that he is quite correct in placing a major portion of the emphasis on the prevention and treatment of shock.

As regards the prevention, I would like to add a couple of points to the many which he has enumerated. These include rigid hemostasis and the careful handling of tissues, which in reality amount to very much the same thing. When rigid hemostasis is not used, the blood volume is diminished by the loss of blood outside the tissues, whereas, when the tissues are handled roughly, the loss is mainly into the tissues themselves. Neglect of either of these factors diminishes the blood volume to the extent that shock is apt to result. If as a result of blood loss the blood pressure falls to the neighborhood of seventy millimeters of mercury, it takes very little additional loss in blood volume to result in profound shock.

I have advanced a classification of shock which, although not entirely adequate, covers most of the points. The first type is the hematogenic one. This refers to the instances in which there is a loss of blood volume either from the surface or into the cavities of the body, or, secondly, into the tissues themselves. It is with this hematogenic type of shock that Dr. Perkins has dealt largely in his paper. Shock as a result of uncomplicated hemorrhage is the simplest example. Shock following trauma to large masses of muscles also belongs to this group. The treatment par excellence for this condition is transfusion, and it should be carried out before the blood pressure remains at a low level for a considerable time; otherwise irreparable damage as a result of oxygen lack will have taken place.

The second type is the neurogenic one. This term is used to designate the condition that is usually known as primary shock or collapse. As Dr. Perkins has stated, it is more rapid in onset than the hematogenic type. The major circulatory disturbance at first consists of a decline in blood pressure in contrast to the hematogenic type in which the blood volume decreases first. Neurogenic shock may be brought about by agencies which influence the nervous system directly, such as spinal anesthesia or trauma, or it may be reflex in origin, as, for example, the collapse that follows a severe blow in the abdomen. As Dr. Perkins has said, vasoconstrictor drugs, such as adrenalin, are usually of benefit in treating this condition.



The third type is the vasogenic one in which vascular dilatation is brought about by agencies which act directly on the vessels. The shock associated with the administration of excessive amounts of nitrates or the condition which results from disease of the adrenal glands belongs to this type.

Fourthly, there is the cardiogenic type, which is the result of a primary disturbance of the action of the heart. It is characterized by venous distention in contrast to the collapsed condition of the veins that is found in peripheral circulatory failure. A rapid accumulation of fluid in the pericardial cavity produces this type of alteration. We have observed in the last several years three patients with stab wounds of the heart who were in shock as a result of bleeding into the pericardial cavity. The release of the pressure and the closure of wounds resulted in immediate improvement. The chronic form is seen in *concretio cordis* or constrictive heart disease where the pericardium has become markedly thickened and adherent to the heart. Dr. Burwell and I have observed fourteen patients with this condition.

Many instances of shock are observed in patients which do not fit into any single one of these types, but are rather combinations of them, and that, of course, is where so much of the confusion arises. For example, many different factors may enter into the production of the shock that is as-

sociated with operations. Among these may be hemorrhage, loss of plasma from exposed surfaces, loss of fluids by sweating and vomiting, dilatation of vessels as a result of mechanical irritation and vascular reflexes, infection, anesthesia, and particularly the disease for which the operation is performed.

DR. PERCY A. PERKINS (closing): I appreciate very much Dr. Blalock's discussion. His classification of shock is especially interesting. As you know, Dr. Blalock in recent years has done more work on shock than possibly any man in the United States. I had hoped he would talk to us even longer than he did today. I also want to thank Dr. W. C. Campbell for his remarks in connection with the proper handling of acute fractures.

As I emphasized in my paper, the best treatment of shock is its prevention, and the greatest field of educational work possibly lies in the proper care of fractures. This means "splinting them where they lie."

Of course, there is still much to be learned about shock; however, some splendid research work has been done in recent years by Blalock, Cannon, Phemister, and others who have contributed a great deal to our knowledge of shock.

## TREATMENT OF EPIDEMIC MENINGITIS\*

R. B. WOOD, M.D., Knoxville

THERE ARE not a great number of medical emergencies in the general practice of medicine. Perhaps those of angina, diabetic coma, or acidosis and shock offer the more striking examples. To this group, one feels at times that epidemic meningitis might belong, for in the early hours of so acute an infection one most frequently supplies or fails to supply effective measures for relief.

There are as yet no preventive measures whereby one may forestall the introduction of meningitis to individual members or to groups of susceptible nature. While transmitted most likely by carriers, the possessors of these virulent organisms are not known or easily found. The contagiousness is not readily understood. Probably transmitted as are other "droplet infection" diseases, we do not find similar circumstances such as multiplicity of cases in the same family or frequently in groups exposed in the same way as the stricken patient. In over one hundred fifty cases we have seen two incidences of proved meningitis in the same family. In each incident they were virulent forms.

For a disease in which there is available specific antiserum, it appears that the mortality rate is entirely too high. Most writers will state that one may expect from twenty-five to thirty-five per cent and upward, varying with the virulence of the epidemic. There are in addition many other factors, such as age, natural resistance of patients, nutritional state, duration of disease before recognition, concentration of serum used, along with general medical and nursing care.

One notes with interest the trends in mortality rates for the different periods before and after the use of specific serum, which was introduced in 1906.

Leonoff reports 118 cases treated by drainage, hot baths, and urotropin with a mortality rate of 50.8 per cent and a recovery of twenty per cent. Using a weak antiserum in small doses in 117 cases, there was an immediate mortality of forty-one per cent and recovery of forty-six per cent.

Using a vaccine in sixty-six cases, he claims a recovery of almost sixty per cent and an immediate mortality of thirty-four per cent. A glance at Chart I will reveal the success and failure of the various methods of treatment used by him.

CHART I LEONOFF-VRACH GAZ. 33.91

|                                           | Cases | Mortality | Cured | Duration  | Compli. |
|-------------------------------------------|-------|-----------|-------|-----------|---------|
| Drainage, baths, and urotropin internally | 118   | 50.9      | 20.3  | 28.5 days |         |
| Urotropin Intraspinal                     | 7     | 57.1      | 1.1   |           |         |
| Injection of Pts. Spinal Fluid            | 4     | 60        | 20    |           | 1       |
| Poly. val 1. Serum 2                      | 117   | 419       | 46.1  | 31.5 days | 18.5    |
| Vaccine                                   | 24    | 33        | 67    | 43.5      | 6.2     |
| Vaccine and Urotropin                     | 42    | 35.7      | 52.3  | 30.4      | 22.7    |

Results of other workers using various methods are shown in Chart II.

CHART II

|                   | Cases | Cured       |
|-------------------|-------|-------------|
| Bomar             | 71    | 37 Per Cent |
| Borovsky          | 190   | 41 Per Cent |
| Fox               | 69    | 63 Per Cent |
| Neil              | 254   | 77 Per Cent |
| Glasgow Outbreak  | 134   | 17 Per Cent |
| New York Outbreak | 79    | 46 Per Cent |

The writer has undertaken an analysis of 100 cases occurring in Knoxville and treated at the General Hospital during the period of 1930 to 1934, inclusive. What might be considered as a mild epidemic occurred in 1931, at which time on the city service there occurred fifty cases. Previous and subsequent to this the incidence of admissions corresponds closely to that of other general hospitals. A preponderance of males is noted during the epidemic, the proportion to females being about five to three, while in the general population there are ninety-three males to every 100 females. Chart III reveals the age incidence.

CHART III

| Under 1 Year | 1-10 | 11-20 | 21-30 | 31-40 | Over 40 |
|--------------|------|-------|-------|-------|---------|
| 10           | 22   | 29    | 20    | 12    | 7       |

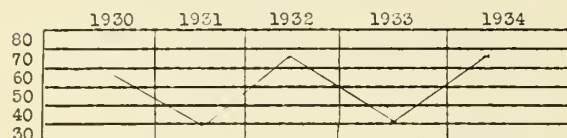
\*Read before the Tennessee State Medical Association, Nashville, April 9, 10, 11, 1935.



It will be noted that sixty-one per cent occurred before the age of twenty, thus making it a disease of infancy and early adult life. The youngest case seen was three months, and the oldest seventy-two.

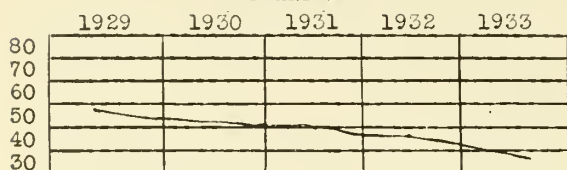
The mortality rate was noted to vary exceedingly. At the beginning of the epidemic the cases seemed very virulent, both in the charity and private practice. Chart IV shows the rate for the five-year period.

CHART IV



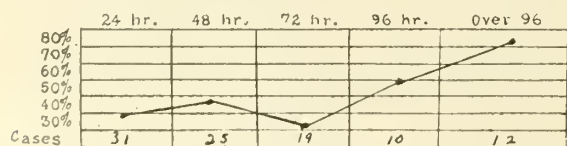
No explanation can be offered for the extreme fluctuation in the curve, other than the fact that during the epidemic a lower mortality rate can be expected as the epidemic progresses. In contrast to this fluctuation during epidemics, one should expect a curve such as is shown in the Cook County Hospital of Chicago and presented by Hoyne.

CHART V



The duration of time elapsing before treatment is instituted is an important factor in mortality rates. This incident undoubtedly plays no small part in accounting for the improvement in the statistics from authors basing their reports from private cases. In my own series such a difference is noted. In ward cases occurring on my service the mortality rate in 1933 and 1934 was sixty-eight per cent, while in private cases for the whole five-year period it was only 31.3 per cent. Chart VI shows the mortality rate in reference to duration of symptoms before admission to the hospital.

CHART VI

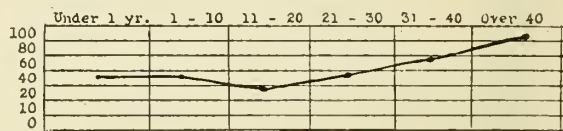


The drop in the mortality rate of the seventy-two-hour admissions below that of the forty-eight can to my view be only ex-

plained on the basis of so few cases in the series.

The mortality rate is more favorable in young adults and less favorable in the very young and particularly so in the elderly, as is shown in Chart VII.

CHART VII



The mortality for all ages was forty-seven per cent, being fifty per cent under ten, forty-one per cent from ten to twenty, fifty per cent from twenty to thirty, fifty-six per cent from thirty to forty. No case recovered who was over forty, although many cases do recover at this age. There were eleven deaths within twenty-four hours, and eight in forty-eight hours. These are included in the series, but in no case has death been attributed to spinal puncture or cisternal puncture. The average hospital stay of recovered cases was 17.3 days.

Complications, including spinal block, blindness, deafness, paralysis of muscles, developed in eighteen per cent. As related to the duration of symptoms before admission to the hospital, it is noted that there was a gradual increasing incidence with each twenty-four-hour delay in the introduction of treatment.

The recovered series received an average of fifty cc. of serum in the first twenty-four-hour period. The average case in the mortality group received forty-one cc. The largest amount received by a single case who recovered was 1,290 cc., the smallest twenty cc. The largest amount given to a case who died was 825 cc. Average punctures were 7.8 per patient, the largest number to anyone who recovered being thirty-four times. Cisternal puncture was resorted to in only nine cases; one case being treated throughout by this method receiving eight punctures.

As to the treatment of choice in this malady, there is no uniformity of opinion. Because of the fact that a meningococcemia exists in the early stages of this disease, it is our custom routinely to give serum twice daily for the first two days of treatment. At the same time, lumbar drainage is done once or twice daily, according to

the severity of the illness, and the fluid removed is replaced by serum. We have tried the usual stock serums, and during one year we employed a serum made from a group of cases occurring locally, hoping to obtain more specific results. Agglutination tests revealed, however, that the stock serum being used was effective for the particular strain of organisms present in our epidemic. No improvement in our rates took place after the use of the special serum. We believe it frequently advisable to use different brands of serum in the same case.

There are different views relative to the frequency of drainage. No one doubts the use of this procedure in lessening the pain of increased intracranial pressure, but there are some who hold that protective antibodies are removed with the fluid. This does not seem likely, though the writer has made none other than general observations on this point.

One frequently is asked the most effective way of drainage and for the administration of serum. From a theoretical viewpoint, we consider cisternal drainage the most logical, as this point is the meeting point of the spinal, subarachnoid, and ventricular systems. Here is the point of the severest inflammation, and if serum, applied to the point of the pathological process, is of any value, it will be applied in its greatest concentration if given cisternally. By draining at this point spinal block will be entirely avoided, and increase of severity of the case will be avoided by faulty drainage. One frequently is in a quandary as to whether he is obtaining poor drainage from a partial block or from a misplaced needle in the canal. If from the latter, and serum is forced out of the canal, much distress is given the patient as well as most likely causing a block from the extradural pressure. We have noted with pleasure the rapid decrease of symptoms when changing from the lumbar to the cisternal method of drainage. In very small children it is much easier to perform the puncture through the cistern.

There is one point we wish to mention in reference to drainage. There is no doubt but that considerable shock can be produced by too rapid and too much withdrawal of fluid. A preliminary opiate will be of much aid in combating shock, and

frequently general anesthesia is indicated where there is extreme hyperesthesia or opisthotonos.

Too much cannot be said in reference to the general nursing care. Adequate rest and fluid intake must be maintained. This is an important item, in our estimation, as one of the explanations of better results in private patients as contrasted to those on the charity service.

One gains the impression that as long as free drainage takes place the case holds out promise of improvement, and as soon as the fluid begins to lessen and thicken the outlook is less hopeful. Large quantities of intravenous hypotonic saline will often stimulate the fluid production. This may necessitate more frequent punctures.

It would seem that something yet is badly needed in the treatment of meningitis. Many cases apparently die of toxemia very early; and another group begin to improve, the cell count starts downward, and then later ascends, and the patient goes on to a fatal termination.

It has always been thought that no soluble toxin existed in this disease, but recent work begins to make this position extremely doubtful. Ferry, Norton, Steele, and others believe that the symptomatology of the disease is attributable in part at least to a toxin. They have developed an antitoxin, and recently Hoyne reports a series of cases treated by both antitoxic and antiserum methods showing the mortality rate of the cases using antitoxin to be much lower than that of any previously used method. It is to be hoped that this method will lessen the toll heretofore exacted by meningitis.

#### DISCUSSION

DR. JOHN M. LEE (Nashville): Dr. Wood has very ably presented a most interesting study of epidemic meningitis, which emphasizes the following points:

1. This disease occurs most often in the early years of life.

2. Morbidity and mortality rates vary widely.

3. The use of serum treatment has been followed by a definite reduction in mortality and residual defects.

4. The more promptly after onset serum treatment is instituted, the lower the mortality rates and sequelae.

5. While antimeningococcic serum is a great aid in the treatment of this disease, and until a better agent is available should be used, it leaves much to be desired.



While puncture of the cisterna magna for drainage or for the administration of serum has many obvious advantages over lumbar puncture, especially in infants and small children, the hazard of this procedure should be borne in mind constantly. In the hands of the skilled operator it is a big advantage; in the hands of the unskilled it is a very dangerous procedure.

Just recently, as suggested by Dr. Wood, some very interesting work has been done by Dr. Ferry of Detroit and his coworkers, followed up by Dr. Hoyne at Chicago. The rest of my remarks are extracts from articles by these gentlemen recently published in the literature.

As pointed out by Dr. Wood in his paper, the work of Ferry, Norton, Hoyne, and others has great promise of resulting in a more efficient method of treating epidemic meningitis. Until recently it was thought that no soluble toxin of the meningococcus existed, but Ferry and his coworkers claim to have demonstrated such a toxin for each of the four Gordon types of this organism. These toxins, when injected into animals, develop specific antitoxins. Convalescent serums were shown to possess neutralizing properties toward homologous soluble toxins.

Ferry concludes from his observations that the symptoms of meningococcic meningitis in laboratory animals result from a selective action of the toxin on the cerebrospinal nervous system. He found that animals receiving lethal doses of toxin intracisternally or lethal doses of viable culture intraspinaly could be protected by intraperitoneal injections of antitoxin, but not by standard antimeningococcus serum, and that animals immunized by intracisternal sublethal doses of toxin were resistant to lethal doses of live culture. He also found that susceptible human beings can be immunized against meningococcus toxin as revealed by subsequent skin tests.

At Cook County Hospital, Chicago, Hoyne reports results from the use of the experimental antitoxin developed by Ferry. One hundred two patients with meningococcic meningitis were treated with this antitoxin with a mortality rate of 20.5 per cent. During the same period of time, 211 other patients with this disease were treated at the same hospital with two well-known standard brands of antimeningococcus serum with a mortality rate of 45.9 per cent. That, you see, is more than twice the mortality rate of the cases treated with antitoxin.

Hoyne suggests that eventually it may be unnecessary to administer any serum intraspinaly if enough antitoxin is injected intravenously, as he noted that the more antitoxin he gave intravenously, the smaller the amount required for intrathecal injection. Under such circumstances, lumbar puncture would be necessary only for diagnosis and for drainage. Hoyne reports a prompt response of the infection to intramuscular and intravenous use of antitoxin, resulting in a more than twenty

per cent reduction in the period of hospitalization. He states that benefit follows the intramuscular use of this antitoxin. However, he advises that it be given intravenously for the more prompt effect. He cites in his article the case of a mother who had a meningococcemia. A few days before that, she had lost a child with the fulminating type of epidemic meningitis. The mother was treated with the antitoxin and was given only intravenous injections, and she recovered in five days.

While this plan of treatment needs confirmation in the hands of others, it promises a most welcome improvement over our present methods.

DR. DAVID HAILEY (Nashville): I just arose to emphasize two points that Dr. Wood brought out. One is that you know meningococcic infection is primarily a blood-stream infection, and the meningeal stage of it does not necessarily mean that at that time the organisms disappear from the blood stream. I personally feel that the tendency has been, the diagnosis being made after meningeal symptoms have appeared, spinal fluid findings being positive, not to give serum intravenously, and I rise simply to make a plea for the use of serum intravenously in these early cases especially. Just because meningeal symptoms have appeared I do not think we are justified in withholding intravenous serum. Dr. Wood mentioned that point and suggested that it be given at least twice in twenty-four hours during the first two days.

The other point that he also mentioned that I wish to emphasize is the change from one brand of serum to the other when your patient fails to show proper response. If we noticed a definite response, we would be loath to change the brand of serum, but if patients do not show prompt improvement, we should change to a different brand, but I do not think we should repeatedly use the same brand when a patient fails to show improvement.

DR. R. B. WOOD (closing): Mr. Chairman, I simply rise to thank those who have discussed the paper and to call your attention particularly to the recent work that has come out from Chicago on the use of the new serum. I have always taken the problem of meningitis very seriously on account of its tremendous mortality rate. If these individuals doing obstetrics and using certain procedure should lose forty-five per cent of their cases on the average, the practice of medicine would soon fall into disrepute. It would seem that by earlier diagnosis and the use of some form of antitoxin or serum the mortality of epidemic meningitis ought to be reduced, particularly since we seem to know the prevailing organisms, and we should be able to diagnose these cases at a time that would enable us to get much lower than forty-five per cent on a general average.

## THE JOURNAL

OF THE

### TENNESSEE STATE MEDICAL ASSOCIATION

Devoted to the Interests of the Medical Profession of Tennessee  
Office of Publication, 510 Doctors Bldg., Nashville, Tenn.

Acceptance for mailing at special rate of postage provided for  
in Section 1103, Act of October 3, 1917,  
authorized July 15, 1932.

H. H. SHOULDERS, M.D., Editor and Secretary

NOVEMBER, 1935

## EDITORIAL

### THE RECENT BLURB BY JUDGE BROWN

Several doctors over the state have received, recently, a blurb from Judge Barton Brown, Administrator of the Tennessee Emergency Relief Administration in Tennessee, in the form of a long circular letter.

Some of the doctors, who took the time to wade through their copy, have suggested that it must have been written by a "ghost writer." Such a notion, they say, is supported by the fact that Judge Brown could have written a more plausible and less conflicting statement. Too, the judge is using a "ghost advisory committee." At least, he has not yet disclosed the names of the "group of prominent doctors" who called on him and "volunteered to serve." However, it is obvious that the rubber stamp of Judge Brown was affixed to the communication, and he doubtless assumes full responsibility for the use of the TERA funds to conduct this good-will campaign.

This communication was referred to the Board of Trustees for consideration at its recent meeting because a charge was made in the letter, to the effect, that facts were "withheld or distorted" in certain editorials that have appeared in the JOURNAL.

The board considered the communication and the editorials. A statement of the action they took appears in the editorial section of this issue.

It appears now that the judge has acquired the notion that he can use his "ghost advisory committee" and then by attacks, such as the one circularized, disrupt the organization of doctors in Tennessee.

He seems to forget some of his previous

utterances also. Just a while back he gave out public statements in the lay press in which he emphasized the fact that there are many colored and white doctors in Tennessee who are not members of the organized medical profession, and cited this as a reason for not recognizing the committee appointed by the organized medical profession to represent the doctors of Tennessee.

He now pays tribute to the doctors in his circular letter, but just a while back he mentioned corrupt acts on the part of some members of the medical profession as a reason for placing "case worker overlords" over the doctors to supervise their care of patients, though he has not yet cited a specific instance in which a number of "unnecessary calls" were made by doctors to relief clients.

He now endeavors to blame the committee of the association for its failure to meet with Mr. Askew, whom he now says he had authorized to cooperate in drawing a new medical code. He does not even mention the fact that he never did even acknowledge receipt of an official communication informing him of the actions of the House of Delegates in forming a committee with authority to act in the matter. The committee had no way of knowing it would be received by this high and mighty director, but on the contrary had every reason to believe that any suggestions of theirs would be ignored.

The official notice was posted to him on April 23. The little memorandum that he refers to was received from him on May 11, 1935.

Another development should now be mentioned because it discloses something of the mental attitude that has directed the activities of that department. One member of the state association committee was called upon by the representatives of Judge Brown to endorse a code which "supposedly" had been prepared by the "ghost committee." Our committeeman declined to give the plan his endorsement, but to the contrary suggested to Judge Brown, by letter, that he submit the code thus drawn to the full committee of the association for consideration. This was never done, though



the suggestion was made many days before the revised code was sent out.

This strained and in some respects stupid attempt on the part of Judge Brown, now, to glorify himself with the doctors of Tennessee, to glorify his "ghost committee," and pay lip tribute to the organized medical profession of Tennessee is, to say the least, assessing doctors as having more credulity than intelligence.

---

A STATEMENT BY THE BOARD OF TRUSTEES  
WITH REFERENCE TO THE ATTITUDE OF  
THE TENNESSEE EMERGENCY RELIEF  
ADMINISTRATION

At the regular meeting of the Board of Trustees held at Knoxville, October 19, 1935, among the many matters considered were the following:

1. The report of the committee appointed to confer with the Tennessee Emergency Relief Administration with reference to a revision of the medical code in Tennessee.

2. A long letter recently sent out by Judge Barton Brown, Administrator of the Tennessee Emergency Relief Administration in Tennessee, to members of the medical profession.

3. Certain editorials which were referred to in the letter by Judge Brown.

After thorough consideration, the following resolutions were adopted:

"Be it resolved by the Board of Trustees that we endorse the actions of the committee appointed by the board to confer with Judge Barton Brown, Administrator of the Tennessee Emergency Relief Administration, in their failure to meet with Mr. Askew under the circumstances that were created. We also endorse the public statement made by the committee."

"We endorse and approve the whole actions of the committee in their efforts to serve the medical profession of Tennessee under trying circumstances."

"We endorse wholeheartedly the editorials in the JOURNAL which Judge Brown sees fit to criticise. We find that these editorials contain statement of fact which cannot be controverted."

"Be it further resolved that Judge Brown is charged with unfairness and insincerity

in his dealings with organized medicine in Tennessee. He not only has not recognized the chosen representatives of organized medicine in Tennessee, but has seen fit to make groundless charges against these representatives."

In addition to the adoption of the above resolutions, the board feels that a brief statement should be made to the membership.

At the regular meeting of the state association in April, the House of Delegates took action to create a committee and directed it to confer with Judge Barton Brown, Administrator of the Tennessee Emergency Relief Administration in Tennessee, with reference to revision of the code that governs the relationship between members of the medical profession and clients on the relief rolls in Tennessee.

The Board of Trustees was charged with the duty of appointing this committee. The board did so.

At the moment this action was taken the board was aware of the fact that some individual doctors were endeavoring to influence the Tennessee Emergency Relief Administration. The board was also aware of certain expressions which Judge Barton Brown had made concerning some of these individuals and their attempts to influence him.

Several members of the board participated in the original conference with Mr. Menzler with reference to the original code. Its faults and defects were apparent to us; however, we deemed it the better policy on our part to cooperate in the emergency and so advised the membership of the association.

Judge Barton Brown in his recent communication fails utterly to discern the spirit in which the organized profession of the state has endeavored to cooperate with the Tennessee Emergency Relief Administration.

We had no latitude in drawing up the original code, and we urged cooperation in the emergency, notwithstanding our objec-

tions. When the emergency became long drawn out and the funds for relief were being poured into the state by the millions of dollars, and when administrative and supervising agents were consuming such a large percentage of the funds appropriated, the spirit of self-sacrificing cooperation on the part of the medical profession could not help but become a bit dampened.

The board recognizes that Judge Brown as an administrator of public funds paid by the taxpayers has been given large powers. It was never assumed that any administrator of relief funds would assume any such dictatorial and autocratic attitude toward a group of citizens, and, in addition, attempt to heap insult upon injury by making such statements as those contained in the circular letter he recently sent out.

It is well for the profession to bear in mind a figure which Judge Brown gave in his letter. It is to the effect that the Tennessee Emergency Relief Administration has spent the sum of \$217,458.69 from July 1, 1934, to July 1, 1935, for medical care. He fails to mention the fact, however, that medical care as used covers dental services, medicines, doctors' services, etc.

We have reliable information to the effect that the sum of \$29,700,000.00 was spent by the Tennessee Emergency Relief Administration from April 1, 1934, to September 30, 1935.

The entire amount spent for all forms of medical care represents seventy-three one-hundredths of one per cent of the total expenditure.

Too, if the whole amount spent for medical care had been equally distributed among the three thousand doctors in the state, the amount each would have received is a little above \$72.00 in that year.

The record of the medical profession in Tennessee in relation to the Tennessee Emergency Relief Administration is above reproach. The attitude has been that of sympathy for the unfortunate people on

relief. The attitude has been that of giving services and relief even in spite of objectionable circumstances. Now it is apparent that the medical profession has received trivial compensation for one of the major services to needy mankind.

Respectfully,

Board of Trustees,

DR. C. M. HAMILTON, *Chairman*

DR. E. R. ZEMP

DR. FRANKLIN BOGART

DR. W. L. WILLIAMSON

DR. J. O. MANIER

---

DR. SUTTON'S REPLY TO JUDGE BARTON  
BROWN

The following is a copy of a communication addressed to Judge Barton Brown by Dr. John W. Sutton, Councilor, in reply to the long circular letter mailed out by Judge Brown. It is self-explanatory.

Maple Ledge, Route No. 1,  
Petersburg, Tennessee.

Barton B. Brown,  
State Administrator,  
Stahlman Building,  
Nashville, Tennessee.

Mr. Brown:

I am in receipt of your letter of October 9, and its contents carefully noted.

At the last meeting of State Medical Association and its House of Delegates in session (of which I am a councilor member), a committee was created and authority delegated to this committee to confer with the state administrator of the Tennessee Emergency Relief Administration. You were notified of this action by our able and highly esteemed secretary, Doctor H. H. Shoulders. You were given the names and addresses of each doctor composing this committee. You had no conference with this committee at any time; and you scrupulously withheld the names of the doctors with whom you claim to have conferred. Your long and tiresome epistle, filled with evasions, criticisms, and excuses exemplifying to a high



degree self-aggrandizement, is absolutely without merit, and wholly unworthy of any sort of consideration.

JOHN W. SUTTON, M.D.

*Councilor, State Medical Association.*

#### THE SOUTHERN MEDICAL ASSOCIATION

The Southern Medical Association has a definite place in the professional life of the South. It deserves to live and to go forward. It deserves the cooperation and support of the medical profession of the South.

It is believed that the opinions above expressed coincide with those of a majority of the profession.

#### THE BOARD OF MEDICAL EXAMINERS

The State Board of Medical Examiners for Tennessee has important and difficult duties to perform. They render a service to the people of Tennessee which can hardly be appraised.

First and foremost, it is the duty of the board to protect the public against inferior or unfit practitioners of medicine.

The qualifications the board demands of applicants are within the reach of any person who has the mental qualities necessary to be a doctor and who applies himself to the task with reasonable diligence.

By reason of the standards which are maintained by the board, those who hold a license to practice in Tennessee enjoy the advantages of reciprocal relations with most of the states of the Union. These advantages, for the public and the profession, have been achieved as a result of effort, well planned and intelligently directed.

## DEATHS

Dr. Robert H. Newman, Knoxville; University of Louisville, School of Medicine, 1905; aged 55; died October 10, after an illness of two months.

## STANDING COMMITTEES

### COMMITTEE ON SCIENTIFIC WORK

H. H. Shoulders, Chairman, Nashville  
A. F. Cooper, Memphis  
W. J. Sheridan, Chattanooga  
Jesse C. Hill, Knoxville

### COMMITTEE ON PUBLIC POLICY AND LEGISLATION

Battle Malone, Memphis (five years)  
L. W. Edwards, Chairman, Nashville (four years)  
Tom Barry, Knoxville (three years)  
T. R. Ray, Shelbyville (two years)  
Robert Sullivan, Nashville (one year)

### COMMITTEE ON EDUCATION

O. S. Warr, Chairman, Memphis (three years)  
R. B. Wood, Knoxville (three years)  
W. G. Kennon, Nashville (two years)  
J. Marsh Frere, Chattanooga (two years)  
W. O. Baird, Henderson (one year)  
J. M. Lee, Nashville (one year)

### LIAISON COMMITTEE

Hiram A. Laws, Chattanooga (four years)  
Tom Mitchell, Memphis (three years)  
J. L. Raulston, Knoxville (two years)  
W. C. Dixon, Chairman, Nashville (one year)  
W. P. Wood, Knoxville (five years)

### STATE TUBERCULOSIS HOSPITAL COMMISSION

W. S. Rude, Chairman, Ridgetop  
O. N. Bryan, Nashville  
C. M. Oberschmidt, Memphis  
J. L. Hamilton, Chattanooga

### HOSPITAL COMMITTEE

D. R. Pickens, Chairman, Nashville  
E. H. Baird, Dyersburg  
B. L. Jacobs, Chattanooga  
Kyle Copenhagen, Knoxville  
J. A. McIntosh, Memphis  
Lee Gibson, Johnson City

### ADVISORY COMMITTEE TO THE WOMAN'S AUXILIARY

Oliver W. Hill, Knoxville  
Matt Murfree, Murfreesboro  
W. W. Campbell, Memphis

## LIST OF OFFICERS OF THE TENNESSEE STATE MEDICAL ASSOCIATION

President—Dr. John B. Steele, Chattanooga.  
 Vice President for East Tennessee—Dr. C. R. Thomas, Chattanooga.  
 Vice President for Middle Tennessee—Dr. J. W. Wilkes, Columbia.  
 Vice President for West Tennessee—Dr. N. S. Walker, Dyersburg.  
 Secretary—Editor—Dr. H. H. Shoulders.  
 Assistant Secretary—Editor—Dr. W. M. Hardy.

## TRUSTEES

Chairman and Treasurer—Dr. C. M. Hamilton, Doctors Building, Nashville.  
 Dr. Franklin B. Bogart, Medical Arts Building, Chattanooga.  
 Dr. W. L. Williamson, 915 Madison Avenue, Memphis.  
 Dr. J. O. Manier, Doctors Building, Nashville.  
 Dr. E. R. Zemp, Walnut Street, Knoxville.

## COUNCILORS

First District—Dr. L. E. Dyer, Greeneville.  
 Second District—Dr. S. R. Miller, Knoxville.

Third District—Dr. J. H. Revington, Chattanooga.  
 Fourth District—Dr. J. T. Moore, Algood.  
 Fifth District—Dr. John W. Sutton, Petersburg.  
 Sixth District—Dr. L. W. Edwards, Nashville.  
 Seventh District—Dr. C. D. Walton, Mt. Pleasant.  
 Eighth District—Dr. J. R. Thompson, Jackson.  
 Ninth District—Dr. E. H. Baird, Dyersburg.  
 Tenth District—Dr. W. B. Burns, Memphis.

Speaker of the House of Delegates—Dr. E. R. Zemp, Knoxville.

## Delegates to the American Medical Association—

Dr. E. G. Wood, Knoxville; East Tennessee.  
 Dr. H. H. Shoulders, Nashville; Middle Tennessee.  
 Dr. H. B. Everett, Memphis; West Tennessee.

## Alternates—

Dr. E. T. Newell, Chattanooga; East Tennessee.  
 Dr. J. O. Manier, Nashville; Middle Tennessee.  
 Dr. E. C. Ellett, Memphis; West Tennessee.

## OFFICERS OF COUNTY MEDICAL SOCIETIES FOR THE YEAR 1935

| COUNTY                                    | PRESIDENT                             | VICE PRESIDENT                         | SECRETARY-TREASURER              |
|-------------------------------------------|---------------------------------------|----------------------------------------|----------------------------------|
| Anderson                                  | Thomas Jennings, Clinton              | Edward Dickson, Coal Creek             | J. S. Hall, Clinton              |
| Bedford                                   | W. T. Sharpe, Farmington              | Alfred Farrar, Shelbyville             | W. H. Avery, Shelbyville         |
| Blount                                    | C. C. Vinsant, Maryville              | L. C. Olin, Maryville                  | H. A. Calloway, Maryville        |
| Bradley                                   | Vance H. Bell, Cleveland              | D. N. Arnold, Cleveland                | Wm. A. Garrett, Cleveland        |
| Campbell                                  | A. L. Lawson, Elk Valley              | G. M. Rogers, LaFollette               | F. J. Slemmons, Jellico          |
| Carroll                                   | E. W. Hillsman                        | S. W. Huffman                          | J. H. Williams                   |
| Carter                                    | E. T. Pearson, Elizabethton           | J. B. Shoun, Elizabethton              | E. L. Caudell, Elizabethton      |
| Chester, Henderson, and Decatur           | C. H. Johnson, Lexington              | J. L. McMillen, Decaturville           | L. C. Smith, Henderson           |
| Cooke                                     | J. A. P. Shields, Hartford            |                                        | J. E. Hampton, Newport           |
| Cumberland                                | E. W. Mitchell, Crossville            |                                        | V. L. Lewis, Crossville          |
| Davidson                                  | W. G. Kennon, Nashville               | H. S. Shoulders, Nashville             | J. P. Gilbert, Nashville         |
| Dickson                                   | L. F. Loggins, Charlotte              | R. C. Newkirk, Tiptonville (Lake)      | R. P. Beasley, Dickson           |
| Dyer, Lake, and Crockett                  | E. H. Baird, Dyersburg                | P. E. Miller, Tigrett (Dyer)           | C. L. Denton, Dyersburg          |
| Fayette and Hardeman                      | John Morris, Somerville               | J. O. McKinney, Friendship (Crockett)  | A. Richards, Bolivar             |
| Fentress                                  | C. A. Collins, Wilder                 | L. D. McAuley, Oakland                 | J. P. Sloan, Jamestown           |
| Franklin                                  | W. F. Smith, Decherd                  | A. H. Crouch, Forbus                   | John P. Grisard, Winchester      |
| Gibson                                    | P. D. Jones, Milan                    | A. P. Smith, Winchester                | F. L. Roberts, Trenton           |
| Giles                                     | Joe B. Wright, Lynnville              | L. H. Montgomery, Trenton              | T. F. Booth, Pulaski             |
| Greene                                    | L. E. Dyer, Greeneville               | R. E. Warren, Pulaski                  | C. P. Fox, Jr., Greeneville      |
| Grundy                                    | D. H. Bryan, Monteagle                | M. A. Blanton, Mosheim                 | T. F. Taylor, Monteagle          |
| Hamblen                                   | P. L. Henderson, Morristown           | O. H. Clements, Palmer                 | J. F. Campbell, Morristown       |
| Hamilton                                  | James L. Bibb, Chattanooga            | P. L. Brock, Morristown                | W. J. Sheridan, Chattanooga      |
| Hardin, Lawrence, Lewis, Perry, and Wayne | G. N. Springer, Hohenwald             | D. N. Williams, Chattanooga            |                                  |
|                                           |                                       | V. H. Crowder, Lawrenceburg (Lawrence) | C. C. Stockard, Lawrenceburg     |
|                                           |                                       | Paul Wylie, Hohenwald (Lewis)          |                                  |
|                                           |                                       | W. E. Turner, Lobelville (Perry)       |                                  |
|                                           |                                       | J. T. Keeton, Clifton (Wayne)          |                                  |
|                                           |                                       | Otis W. Whitlow, Savannah (Hardin)     |                                  |
| Haywood                                   | W. D. Poston, Brownsville             | A. H. Sorrelle, Brownsville            | Roy M. Lanier, Brownsville       |
| Henry                                     | A. F. Paschall, Puryear               | Elroy Scruggs, Paris                   | R. Graham Fish, Paris            |
| Hickman                                   | L. F. Pritchard, Only                 |                                        | W. K. Edwards, Centerville       |
| Humphreys                                 |                                       |                                        | W. W. Slayden, Waverly           |
| Jackson                                   | J. D. Quarles, Whiteville             | R. C. Gaw, Gainesboro                  | F. B. Clark, Gainesboro          |
| Knox                                      | Eugene Abercrombie, Knoxville         | W. F. Christenberry, Knoxville         | Jesse C. Hill, Knoxville         |
| Lauderdale                                | J. L. Dunnivant, Ripley               | T. E. Miller, Ripley                   | J. R. Lewis, Ripley              |
| Lincoln                                   | J. D. Bryant, Fayetteville            | H. Knox Alexander, Fayetteville        | J. M. McWilliams, Fayetteville   |
| Macon                                     | D. D. Houser, Lafayette               | P. East, Lafayette                     | J. Y. Freeman, Lafayette         |
| Madison                                   | F. C. James, Gadsden                  | H. E. Whitlock, Bemis                  | S. M. Herron, Jackson            |
| Maury                                     | E. M. Ragsdale, Columbia              | D. B. Andrews, Columbia                | C. D. Walton, Mt. Pleasant       |
| McMinn                                    | R. W. Epperson, Athens                | S. B. McClary, Sr., Etowah             | L. A. Brendle, Englewood         |
| McNairy                                   | John R. Smith, Selmer                 | G. B. Curry, Selmer                    | H. C. Sanders, Selmer            |
| Monroe                                    | T. M. Roberts, Sweetwater             | J. A. Hardin, Sweetwater               | W. J. Cameron, Sweetwater        |
| Montgomery                                | M. L. Hughes, Clarksville             | F. J. Malone, Clarksville              | Paul E. Wilson, Clarksville      |
| Obion                                     | W. B. Harrison, Union City            | Har Glover, Union City                 | Frank B. Kimzey, Union City      |
| Overton                                   |                                       |                                        | A. B. Qualls, Livingston         |
| Polk                                      | H. P. Hyde, Copperhill                | W. Y. Gilliam, Copperhill              | F. O. Geisler, Isabella          |
| Putnam                                    | Z. L. Shipley, Cookeville             | J. Fred Terry, Cookeville              | Thurman Shipley, Cookeville      |
| Roane                                     | L. A. Killefer, Harriman              | R. F. Register, Rockwood               | W. W. Hill, Harriman             |
| Robertson                                 | W. Foster Fyke, Springfield           |                                        | W. S. Rude, Ridgeway             |
| Rutherford                                | J. D. Hall, Readyville                | B. W. Rawlins, Murfreesboro            | A. A. Scott, Murfreesboro        |
| Scott                                     |                                       |                                        | D. M. Woodward, Winona           |
| Sevier                                    | O. H. Yarberry, Sevierville           | R. J. Ingle, Sevierville               | C. P. Wilson, Sevierville        |
| Shelby                                    | Jas. B. Stanford, Memphis             | R. G. Henderson, Memphis               | A. F. Cooper, Memphis, Secretary |
|                                           | R. F. Mason, Memphis, President-Elect |                                        | J. J. Hobson, Memphis, Treasurer |
| Smith                                     | R. E. Key, Monrovia                   | Rhea E. Garrett, Dixon Springs         | Thayer S. Wilson, Gordonsville   |
| Sullivan and Johnson                      | W. R. Rogers, Bristol, Va.            | L. C. Cox, Kingsport (Sullivan)        | Arthur Hooks, Bristol, Tenn.     |
|                                           |                                       | J. C. Hutchenson, Crandall (Johnson)   |                                  |
| Sumner                                    | J. J. Gwin, Hartsville                | R. N. Buchanan, Hendersonville         | Homer Reese, Gallatin            |
| Tipton                                    | A. J. Butler, Covington               | J. J. Fleming, Atoka                   | H. C. Currie, Covington          |
| Warren                                    | E. L. Mooneyham, Rock Island          | Jas. Boles, McMinnville                | John S. Harris, McMinnville      |
| Washington                                | J. W. Wallace, Johnson City           | E. T. Brading, Johnson City            | Carroll H. Long, Johnson City    |
| Weakley                                   | R. W. Brandon, Martin                 | H. G. Edmonson, Martin                 | P. W. Wilson, Dresden            |
| White                                     | S. E. Gaines, Sparta                  | Vernon Hutton, Ravenscroft             | A. F. Richards, Sparta           |
| Williamson                                | T. C. Rice, Franklin                  | R. H. Hutchison, Franklin              | K. S. Howlett, Sr., Franklin     |
| Wilson                                    | J. L. Ames, Lebanon                   | C. C. Young, Alexandria                | S. B. McFarland, Lebanon         |



## WOMAN'S AUXILIARY

President-----Mrs. R. G. Reaves  
Knoxville

President-Elect-----Mrs. Theodore Morford  
Nashville

Press and Publicity-----Mrs. W. O. Floyd  
Nashville

### REPORTS OF COUNTY AUXILIARIES

#### *Davidson County*

Mrs. W. C. Bilbro, Jr., President

The annual membership tea of the Woman's Auxiliary to the Nashville Academy of Medicine and Davidson County Medical Society was held recently at the home of Mrs. Herschel Ezell in Belle Meade Park. The forty-eight guests who called between the hours of three and five o'clock were received by Mrs. Bilbro, president; Mrs. D. W. Smith, chairman of hospitality; Mrs. Oscar G. Nelson, chairman of membership; and Mrs. Ezell.

During the afternoon a musical program arranged by Mrs. Fowler Hollabaugh was given. The reception rooms were decorated throughout with autumn flowers. The tea table in the dining room was veiled with a lace cloth and centered with a silver bowl filled with Gold Standard roses and French marigolds. At either end of the table were silver candelabra burning yellow tapers. Pouring tea were Mrs. W. O. Floyd, past state president of the organization, and Mrs. Theodore Morford, state president-elect. They were assisted in the serving by members of the membership and hospitality committees, including: Mrs. Hugh Morgan, Mrs. Henry Douglas, Mrs. Hearn Bradley, Mrs. Frank Fessey, and Mrs. Hollabaugh.

#### *Shelby County*

Mrs. W. S. Lawrence, President

The regular monthly meeting of the Woman's Auxiliary to the Shelby County Medical Society was held October 16 in the new University Center on South Dunlap Street with the president, Mrs. Lawrence, in the chair. A feature of the program was an address by Mrs. Douglas McNeil of the National Staff of Girl Scouts of America.

The auxiliary agreed to furnish a room in the new University Center. This room will be known as the Assembly Room and future meetings of the auxiliary will be held there. A beautiful luncheon was held in this room following the meeting.

---

#### *Knox County*

Mrs. H. E. Christenberry, President

The Woman's Auxiliary to the Knox County Medical Society held its October meeting at the home of Mrs. W. A. Boies with forty-seven members present. Mrs. Christenberry presented Dr. Andrew Smith, superintendent of the Knoxville General Hospital, who was the principal speaker.

A tentative program of work was outlined for the year as follows: continue *Hygeia* in the schools; assist in school health work; continue prenatal clinic lectures; cooperate with the blind and deaf, and continue social program and work for new members.

The organization unanimously agreed to endorse the Shepherd Bill.

Following the meeting, a delightful social hour was enjoyed.

---

#### *Rutherford County*

Mrs. Matt Murfree, President

The Rutherford County Auxiliary to the Stones River Academy of Medicine met Wednesday at the home of Mrs. W. T. Robison, with Miss Mary Hall as joint hostess. Mrs. Murfree presided and led a discussion on various projects for the year.

Mrs. J. F. Adams gave a report on constitution and by-laws. Chairmen of committees were appointed, as follows: Legislation, Mrs. W. E. Youree; Philanthropy, Mrs. J. A. Scott; Publicity, Miss Mary Hall. Announcement was made of the weekly health talk broadcast over the Blue Network each Tuesday afternoon at four o'clock, and the members were urged to listen in. A feature of the program was a paper on "The Purpose of the Medical Auxiliary" by Mrs. Youree. Tea was served by the hostesses during the social hour.

*Anderson County*

Mrs. H. D. Hicks, President

Members of the Woman's Auxiliary to the Anderson County Medical Society held their regular monthly meeting recently with the president, Mrs. Hicks, in the chair. A report was made on the Loan Closet being equipped by the auxiliary to be used by the Public Health Unit in Anderson County. Some of the equipment for the sickroom was purchased by the organization, but members have generously contributed linens and towels.

A tentative plan of work for the year was discussed and much enthusiasm expressed by the members present. The officers of the auxiliary, in addition to the president, Mrs. Hicks, are: Mrs. J. C. Morris, Devonia, Tennessee, vice-president; Mrs. W. B. Barton, Briceville, Tennessee, secretary-treasurer.

Dr. Jesse C. Hill, secretary of the Knox County Society, included the following in his regular letter to the members. "There is a better feeling among the doctors of Knox County Medical Society than there has been in years. Let us all do our best to keep it that way. Our Woman's Auxiliary has done much to help the cause. We congratulate Mrs. H. E. Christenberry for her fine work. I doubt if there is a woman's organization in Knoxville with a more capable leader. Doctor, encourage your wife to join the auxiliary if she is not a member. There's no organization in all the land,

But what's made better with a woman's hand.

Though the road may look stormy and the like,

Woman will show man the best side of life.

**PERSONAL ITEMS**

Mrs. J. Bonar White of Atlanta, president of the Woman's Auxiliary to the Southern Medical Association, was a recent guest in Knoxville, en route to the Kentucky State Convention. She was joined there by Mrs. Oliver Hill, president-elect of the Southern Auxiliary, Mrs. W. W. Potter, and Mrs. Carl Martin who accompanied her

to Kentucky. During her short stay in Knoxville, Mrs. White was the recipient of a delightful breakfast which the auxiliary gave at the Farragut Hotel.

Mrs. George Carpenter, Mrs. Paul Morrissey, and Mrs. T. G. Pollard of Nashville expect to attend the Southern meeting in St. Louis.

**NEWS NOTES AND COMMENTS**

At its last session, the House of Delegates amended the by-laws by increasing the state dues. In 1936 the dues will be \$6.00 rather than \$4.00 as formerly.

While we have already printed the minutes of the House, we fear some of the members will overlook this change when they begin paying their dues through their county secretary. By paying your county secretary the proper amount you will save him a great deal of work and confusion.

Drs. J. G. Wynne, P. E. Miller, and A. C. Hays have been elected to the Dyer County Board of Health.

Drs. H. L. Hawkins, Jackson, J. C. Pierce, Mercer, J. R. Thompson, Jackson, R. L. Poindexter (dentist), Bemis, have been elected to the Madison County Board of Health.

Dr. Dick Cauthen McCool announces the opening of an office in the Physicians and Surgeons Building, 899 Madison Avenue, Memphis. Practice limited to nervous and mental diseases.

**MEDICAL SOCIETIES**

*Benton, Carroll, Henry, and Weakley Counties:*

The October meeting of this society was addressed by a group of Nashville doctors. Dr. C. M. Hamilton read a paper on "A Few Common Skin Diseases." Dr. T. D.



McKinney discussed "Brain Injuries." Dr. James Read's subject was "Diabetes," and Dr. Owsley Manier discussed "Precordial Pain."

---

*Davidson County:*

October 15—"Aleukemic Leukemia," by Dr. J. O. Manier. Discussion opened by Dr. Herman Spitz.

October 22—"The Diagnosis and Treatment of Uterine Bleeding," by Dr. Lucius E. Burch. Discussion opened by Dr. W. C. Dixon.

October 29—"A Method of Treatment of Incomplete Abortion," by Dr. W. O. Tirrill, Jr. Discussion opened by Dr. D. W. Smith.

November 5—"Modern Application of Artificial Pneumothorax in Pulmonary Tuberculosis," by Dr. Hollis E. Johnson. Discussion opened by Dr. W. W. Hubbard.

November 12—"Lymph Gland Enlargement, with Presentation of Cases," by Dr. Wm. R. Cate. Discussion opened by Dr. J. O. Manier.

---

*Dyer, Lake, and Crockett Counties:*

The Dyer, Lake, and Crockett County Medical Society had a splendid regular monthly meeting November 6, 1935. The following scientific program was presented in classical style:

"Ludwig's Angina," Dr. Frank D. Linn, Memphis.

"Traumatic Surgery vs. Automobile Accidents," Dr. Ernest Kelly, Memphis.

"Acute Circulatory Failures," Dr. Richard Ching, Memphis.

Thirty-one members and visitors thoroughly enjoyed the program.—C. L. DENTON, *Secretary*.

---

*Fayette and Hardeman Counties:*

The Fayette-Hardeman Society met Friday, October 25, at the Western State Hospital. A good attendance was present, and an interesting program was presented.

---

*Five-County Society:*

Twenty-one doctors met at Monterey on October 3 to enjoy a scientific program of this society. At the business session, the society voted unofficially favoring Red Boil-

ing Springs as a meeting place for the Upper Cumberland.

Dr. R. C. Gaw, Gainesboro, spoke on the "Toxemias of Pregnancy." Dr. W. M. Brown, of Livingston, read a paper on "Eye Injuries."

The next meeting will be held the third Thursday in November at Gainesboro.

---

*Hamilton County:*

October 17—"Indications for Enucleation and End Results," by Dr. Willard Steele. "Intestinal Obstruction," by Dr. W. J. Sheridan.

October 24—"Hyperinsulinism," by Dr. J. D. L. McPheeters. "Gastric Ulcer from the Internist's Standpoint," by Dr. B. S. Wert.

October 31—"Vomiting," by Dr. W. A. Reed. "The Doctor in Sports," by Dr. G. Victor Williams.

November 7—"Cryptitis," by Dr. John L. Cooley. "Pneumonia," by Dr. John B. Fitts.

November 14—"Classical Football Injuries," by Dr. E. R. Campbell. "Bone Tumors," by Dr. J. Marsh Frere.

---

*Hardin, Lawrence, Lewis, Perry, and Wayne Counties:*

The society met in Waynesboro, October 29. The following papers were read:

"Home Delivery," by Dr. L. C. Harris, Lawrenceburg. Discussion opened by Dr. T. J. Stockard, Lawrenceburg.

"Myxedema," by Dr. O. N. Bryan, Nashville. Discussion opened by Dr. J. T. Keeton, Clifton.

"Uterine Bleeding," by Dr. C. S. McMurray, Nashville. Discussion opened by Dr. W. E. Boyce, Flat Woods.

"Appendicitis," by Dr. J. H. Tilley, Lawrenceburg. Discussion opened by Dr. J. W. Danley, Lawrenceburg.

---

*Knox County:*

October 29—Dr. Eugene Kellersberger of Africa gave an address with motion pictures on "Sleeping Sickness."

November 5—"Some Problems Arising in the Treatment of Fractures and Fracture Dislocations of the Extremities of Bones of

the Forearm," by Dr. Robert Patterson. Discussion opened by Drs. Penn, Bagwell, and Waterhouse.

#### *Roane County:*

On October 15, the Roane County Medical Society met with the biggest attendance of the year.

Dr. John Roberts read a paper on "Induced Pneumothorax." Dr. Phillips opened the discussion.

It was decided to continue the evening meetings inasmuch as that hour seemed to be more suitable.

#### *Robertson County:*

Dr. John R. Connell, of Adams, and Dr. John S. Freeman, of Springfield, were joint hosts October 15 at the Robertson County Hospital in Springfield to a Mexican "Goulash" dinner for members of the Robertson County Medical Society, visiting Nashville physicians, and local dentists.

The hosts also sponsored the scientific program following the dinner, during which Dr. J. L. Bryan, of Nashville, spoke on "Acute Suppurative Mastoiditis," and Dr. J. H. Phillips of Nashville delivered an address on "The Middle Ground Between Medicine and Dentistry."

Visiting Nashville physicians were Drs. W. A. Bryan, O. N. Bryan, J. C. Pennington, C. C. Trabue, III, N. S. Shofner, and W. J. Core. Local dentists attending were Drs. Morgan W. Boozer, Albion A. McClanahan, Sr., Robert J. DeBerry, and Joseph E. Swann.

Members of the society present were Drs. W. F. Fyke, Connell, Freeman, Porter, Wilkison, Hawkins, Stone, Kempf, Fentress, Hirsch, Dye, and Adair.

The next meeting will be Tuesday, December 17, with Drs. Adair and Stone joint sponsors of the program.

#### *Weakley County:*

The physicians of Weakley County met October 3 in the office of Dr. M. D. Ingram to discuss matters of importance to the doctors and to the citizens of the county.

Dr. J. A. Moore, Sharon, was elected

president, and Dr. P. W. Wilson, Dresden, secretary.

## OTHER MEDICAL SOCIETIES

The East Tennessee Medical Association met at Elizabethton on October 9. A well-balanced program of thirteen numbers was given. The attendance was exceedingly good. Officers were elected as follows:

Dr. E. L. Caudill, Elizabethton, president; Dr. W. T. Mathes, Greeneville, vice-president; Dr. H. A. Calloway, Maryville, secretary-treasurer.

The next meeting will be held in Cleveland.

### VANDERBILT UNIVERSITY MEDICAL SOCIETY October 4, 1935

1. Case Report: "A Case of Adenoma of the Parathyroid Gland with Hyperparathyroidism." Drs. Samuel S. Riven and Morton F. Mason.

The patient was a fifty-one-year-old white female with a history of renal colic. Seventeen years previous she passed several small calculi. Examination revealed an emaciated adult with tenderness in the left flank. Laboratory findings showed a hypercalcemia (12.5 to 13.5 mgs. per 100 cc.), hypophosphotemia (1.7 to 3 mgs. per 100 cc.), and a negative calcium balance. These findings were consistent with a diagnosis of hyperparathyroidism. An exploratory operation of the neck revealed an adenoma of the parathyroid gland. Following its removal there was a return of the serum calcium to normal (9 mgs. per 100 cc.) and a positive calcium balance. At a later operation a renal calculus was removed from the left ureter, which on analysis was a calcium stone.

Case Discussed by Drs. Brooks and Mason.

2. "Experimental Studies on the Technic of Pulmonary Embolectomy." Drs. Gunnar Nystrom and Alfred Blalock.

Experiments were carried out in an effort to find a method which would allow a longer occlusion of the circulation in the performance of a pulmonary embolectomy.



The different procedures included the occlusion of the pulmonary artery and aorta plus the perfusion of the coronary vessels, occlusion of pulmonary artery and aorta plus the perfusion of the heart and brain, and occlusion of the pulmonary artery alone. The best results were obtained in the experiments in which the pulmonary artery alone was occluded.

Paper discussed by Drs. Brooks and Harison.

3. "Specific Responses Elicitable from Subdivisions of the Motor Cortex of the Cerebrum of the Cat." Drs. James W. Ward and Sam L. Clark.

With a well-controlled stimulating current and an arrangement with which fixed unipolar electrodes could be left in contact with the cerebrum, the motor cortex in the cat was subdivided into areas, each of which was associated with specific movements of a contralateral limb. Of these, some produced in the forelimb sustained simple movements, e. g., flexion or extension of the foot. Other specific areas produced complex rhythmic movements of the forelimb as stepping and batting. The phenomenon of facilitation was demonstrated and definite areas outlined which could be facilitated for special movements.

## ABSTRACTS OF CURRENT LITERATURE

### ANESTHESIA

By HUGH BARR, M.D.  
Medical Arts Building, Nashville

Anesthesia in Infant Surgery. Mary E. Botsford, M.D.  
California and Western Medicine, October, 1935.

Many necessary operations on infants, that were not done at all or done under local anesthesia, are now undertaken confidently under general anesthesia. Infants under six months of age can tolerate operations as well as at any other time of life, provided that starvation has not lowered their vitality, and that body heat is maintained.

Ninety-six operations encountered, such as pyloric stenosis, intussusception, umbilical hernia and cleft palate, without a fatality bear out the author's contention. Ether is the anesthetic of choice, by the semiclosed method carried on a very light plane of anesthesia. Nitrous oxide and oxy-

gen can be given very satisfactorily when ether is contraindicated by respiratory infection or renal dysfunction.

Chloroform is considered unsafe. Ethyl chloride, due to its accumulative effect, is unsafe for operations lasting over a few minutes. Tribromethanol is of value in brain surgery, but as it has to be given to children in relatively larger doses than adults, and as it is contraindicated in the presence of liver and kidney pathology, it must be used with caution.

### OPHTHALMOLOGY

By ROBERT J. WARNER, M.D.  
Doctors Building, Nashville

Telescopic and Contact Glasses. Bulletin Green's Eye Hospital. October, 1935.

The newspapers and some magazines have recently given a great deal of space to the magical properties of certain aids to vision in the form of contact lenses or telescopic spectacles.

The inference conveyed is that they enable the almost blind to see. As the general practitioner is frequently the one first to be consulted about the merits of such devices, we take this opportunity to explain their limitations.

Neither have they any miraculous properties. Our experience with telescopic spectacles extends over a period of fifteen years. Their usefulness is very limited, as they give a very restricted field of vision, are cumbersome and unsightly, and very expensive. They are helpful rarely in congenital amblyopia and high myopia, and can usually only be worn at home or at a theatre, but not on the street.

Contact glasses are still more limited in their use. Our experience with them covers a period of about ten years. The eye must learn to tolerate them as a foreign body which is only possible for a limited time. Because the layman has little or no training in asepsis, infection will result in many instances.

Exception instances may arise in professional people who appear before the public, who, for appearance's sake alone, wish to avoid wearing spectacles while on the stage. Contact glasses may then be worn for short periods of time. They are at times of value in keratoconus. On the whole they have not proven very satisfactory.

### PEDIATRICS

By JOHN M. LEE, M.D.  
Doctors Building, Nashville

The Use of Convalescent Blood in Whooping Cough. William L. Bradford, M.D. Amer. Jour. Dis. Children. October, 1935.

After an extensive review of the literature concerning the use of convalescent serum and of whole

blood in cases of whooping cough the author summarizes his experience as follows:

"Fifty-eight children, chiefly under 3 years of age, were given injections either of 10 cc. of serum taken in the eighth week of convalescence or of from 10 to 20 cc. of whole blood taken from an adult (parent) who had experienced the disease previously. Forty-four of this group were obliged to remain in families in which one or more cases existed. Twenty-seven of this group received the injections during the incubation period. In fifteen the disease developed, but in ten (66 per cent) it was mild. There was one complication.

"Of twenty children used as controls, eight (41 per cent) had a mild form of the disease; eight, average; and four, severe. In four complications developed.

"In seventeen children exposed in the family who received the preventive vaccine after symptoms of coryza existed, there was no indication that the disease was modified. In a group of sixteen patients exposed outside of the family nine were given injections during the incubation period, and the number completely protected was so great as to suggest that the exposure may not have been genuine.

"From evidence obtained by observation of treated patients exposed in the family along with suitable controls and from the survey of the literature to date, it seems probable that immune blood is effective in the prevention and modification of whooping cough if given before the catarrhal symptoms appear. If given after the disease is established, favorable results are less apparent."

## SURGERY—GENERAL AND ABDOMINAL

By BATTLE MALONE, II, M.D.  
1400 Monroe Avenue, Memphis

### Complete Thyroidectomy in Advanced Heart Disease.

Gerald H. Pratt, M.D., New York City. *American Journal of Surgery*. Vol. 28, April, 1935.

The physiological connection between the thyroid gland and the heart has been known for thousands of years, as is evidenced by the history of iodine therapy in both goiter and heart disease. In thyrotoxicosis with a decompensating heart, a marked improvement is noted in the cardiac function following subtotal thyroidectomy. Babcock has always advocated total thyroidectomy in goiters when the cardiac lesion was advanced.

Blumgart and his associates studied the velocity of the blood flow in 600 subjects and concluded as follows:

1. The velocity of blood flow is more easily measured than any minute volume output at the heart and is perhaps as nearly accurate a guide as to cardiac efficiency as we have.

2. The velocity of the blood flow is directly determined by the metabolic demands of the body.

3. The metabolic demands of the body are gauged by the metabolic rate.

4. If the metabolic demand of the body is increased, as in thyrotoxicosis, the speed of the blood flow is increased proportionally.

5. If the metabolic demand is lowered, as in myxedema, the speed of the flow is decreased.

Continuing their work, they conclude that if compensation could not be reestablished by rest, digitalis, diet, etc., in a person with a normal basic rate, then it might be done by lowering greatly the basal rate and thereby reducing the blood supply required. Likewise in coronary heart disease, the heart being a muscle that requires more blood supply for itself at a higher metabolic rate than at a lower one, and if it is not supplied failure with pain and the whole coronary syndrome results.

A number of hopelessly decompensated cardiac cases were treated by total thyroidectomy at Temple University Hospital with encouraging results.

*Selection of a patient.* Only those in whom other therapeutic measures have failed are considered eligible. The dangers are explained to them and the decision is made by the patient.

*Preoperative care.* Basal metabolic rate is ascertained and checked and a careful cardiac study is made. The patient is placed in a quiet room and absolute bed rest is required. Each morning the patient receives a sterile saline hypodermic injection and a small saline retention enema. Digitalis is given as indicated and lugol solution given routinely, 15 mm. three times daily by mouth. On the morning of the operation morphine is substituted for the saline hypodermic and avertin is given in the retention enema, without the knowledge of the patient. He is then taken to the operating room asleep, where the avertin is supplemented by nitrous oxide-oxygen or local anesthesia.

*Operation.* The usual collar incision is made, and the ribbon muscles are retracted. Every bit of thyroid tissue is removed, but care is taken to preserve the parathyroids and to prevent injury to the recurrent laryngeal nerves. Speed is emphasized. Silk suture material is used rather than catgut to obviate the necessity of drainage.

*Postoperative care.* The patient is carefully watched for dyspnea, tetany, nerve palsy, etc. A retention enema of saline and lugol solution is given slowly. Ice caps are placed over the head and precordium, and fluids are supplied as indicated. An emergency tracheotomy set is maintained at the bedside. Should a marked auricular fibrillation develop, this is handled by quinidine. Sedatives are used as required in comparatively large doses. Prolonged rest in bed is required. Diet and elimination must be directed. The appearance of myxedema must be watched for.

*Results.* The author reports on the result of total thyroidectomy in nineteen cases. Three of this group were definite coronary diseases, twelve



showed marked cardiac decompensation, and four were victims of syphilitic heart disease. All but two of the patients have shown complete relief of symptoms.

*Dangers.* The mortality during operation is fairly low, and patients in marked decompensation tolerate the operation fairly well. Tetany, pulmonary complications, recurrent laryngeal nerve injury, infection, and hemorrhage with asphyxia are the principal dangers.

The author reports two cases in detail, illustrating the value of total thyroidectomy in advanced heart disease.

with gonococcic tenosynovitis into the urethra of a healthy man. Not only gonorrheal urethritis resulted, but also gonorrheal arthritis of the left foot and right wrist, and tenosynovitis of the extensors of the toes.

Treatment consists in adequate drainage. Two cases are reported in detail. I have also seen two cases, one involving the extensors of the forearm which required drainage, the other began in the extensors of the thigh, later involving the forearm, with termination in the hand. This case resolved without suppuration.

## UROLOGY

By TOM R. BARRY, M.D., F.A.C.S.  
Medical Building, Knoxville

Acute Suppurative Gonococcic Tenosynovitis. Walter Birnbaum, M.D., and C. L. Callander, M.D. Jour. A. M. A. September 28, 1935.

In the literature there have been reports of gonococcic thyroiditis, infections of surgical wounds, laryngitis, tonsillitis, otitis media, etc., the commonest focal involvements being the joints and less frequently bursae and tendon sheaths.

There are only a few references to gonococcic tenosynovitis, especially involving the hand. The primary focus may be the urethra, Skene's glands, prostate, vesicles, or conjunctiva. This may occur in chronic or acute forms of gonorrhea. Meyer cultivated the gonococcus from a flexor tendon sheath of a finger. This was due to a traumatic injury.

Males are predominantly infected, the ratio being three to one.

The sheaths of the extensor tendons are the commonest affected. Acute tenosynovitis is characterized by a mild inflammatory reaction with or without effusion. The severe form produces frank suppuration. The sheaths may be filled with thick hemorrhagic pus.

Diagnosis is made by history, clinical and laboratory observations. Swelling, redness, and tenderness along the course of the tendon and limitation of motion are the common findings.

Immediate bacteriologic examination is necessary as the gonococcus may disappear from the lesion.

Aehman injected the blood from a girl suffering

## BOOK REVIEW

Pediatric Treatment. By Philip S. Potter, A.B., M.D., F.A.A.P. Formerly Instructor in Clinical Pediatrics at the Medical School of Syracuse University, Chief of the Pediatric Service of the University Hospital of the Good Shepherd, Attending Pediatrician at St. Mary's Infants' Hospital, Chief of Staff of the Summer Hospital of the Visiting Nurse Association, Attending Pediatrician at the Syracuse Free Dispensary, Attending Pediatrician to the Outpatient Department of the Children's Hospital of Oakland, California, Chief of the Pediatric Service at the Berkeley Health Center, Attending Pediatrician to the Berkeley General Hospital and its Outpatient Department, to the Wellbaby Conference and Physician to the Berkeley Sunshine School for Undernourished Children, to the High School and to Various Grade Schools of Berkeley, California. Cloth, Pp., 578. New York. The Macmillan Company, 1935. Price, \$5.00.

This work is just what the author terms it, "A manual of the treatment of the disease of infants and children designed as a reference work especially for the general practitioner and physician entering the field of pediatrics." It is in no sense a textbook on pediatrics. The subjects treated are discussed clearly and concisely, though briefly, and the book includes practically all the conditions encountered in the average pediatric experience. The therapeutics advised is generally that which time and experience have proven, and at the same time recent advances in our knowledge have been given due consideration. Numerous diet lists, dosage tables, and prescriptions will have especial appeal for one who desires a book to which he can refer to find out "what to do" for a given condition. —J. M. L.

# THE JOURNAL

OF THE

## TENNESSEE STATE MEDICAL ASSOCIATION

DEVOTED TO THE INTERESTS OF THE MEDICAL PROFESSION OF TENNESSEE

ISSUED MONTHLY, Under Direction of the Trustees

H. H. SHOULDERS, M.D., Secretary and Editor

W. M. HARDY, M.D., Asst. Secretary-Editor

OFFICE OF PUBLICATION, 510 DOCTORS BUILDING, NASHVILLE, TENNESSEE

Volume XXVIII

DECEMBER, 1935

No. 12

### THE MUTUAL OBLIGATIONS OF THE MEDICAL PROFESSION AND THE PUBLIC\*

N. S. SHOFNER, M.D., Nashville

*Mr. Chairman, Fellow Members of the Middle Tennessee Medical Society:*

I wish to take this opportunity to express my deep appreciation of the honor of being president of this society which has such a long history of honorable achievement in our beautiful Middle Tennessee which we all love so well. This society has been the meeting place of many illustrious men of medicine of the past. Donald Davidson, our own Middle Tennessee poet, has written of "Tall Men" in the pioneer days of our state. I am happy to think that "Tall Men" have been produced in our profession in adequate proportion to the many other fields in which Middle Tennesseans have been leaders.

To the local profession of Lewisburg and to their fellow citizens I wish to express my especial thanks for their hearty reception and hospitable arrangements for this excellent meeting.

Custom demands that the president of the society make an address at this time, and I have given considerable thought to the choice of a subject. My first thought was to discuss at some length the subject of medical ethics and the duties of the doctor to his patient and to his fellow practitioners. It seemed to me, however, that where there is a duty on the part of the doctor to the public there must necessarily be some duty

of the public toward the doctor, and I therefore have chosen to discuss "The Mutual Obligations of the Medical Profession and the Public."

The present is a period of skepticism and New Deals. Nothing is held to be above or beyond the criticism of the average citizen. There seems to be a spirit in our country which demands the radical reorganization or even destruction of all institutions or systems which have been in existence for long. The modern Utopian has dreams of improving the status of our citizenship with bold strokes, tearing down and rebuilding along lines consistent with noble theories which wear the beautiful halo of social welfare, but which often are not tested in the crucible of time and experience.

In governmental matters, even the Constitution, which we have always thought was the fountainhead of all our liberties and national greatness, has been attacked as an outmoded document.

I do not propose to make a political oration. I merely call your attention to the spirit of the times. It is only natural that at such a time the institution of medicine should be the subject of criticism and experimentation by those who would change our entire life to conform to the current ideas of national progress and social welfare.

Such has been the case, and all of you are familiar with the continuous efforts made by so-called philanthropic institutions

\*Presidential address delivered before the Middle Tennessee Medical Association, Lewisburg, November 14, 1935. Published at the request of the association.—Editor.



and individuals to bring about changes in the form of medical practice which have never had the endorsement of organized medicine, and in most instances have had its unqualified disapproval.

Let us not dismiss the theories of our critics, however, with the reply that we are above criticism. I fully agree that we all have the right as individuals to our own opinions on subjects of which we have some knowledge. I do not agree that we have the right to criticize without some considerable knowledge of the subject under discussion. We must admit that the spirit of reverence for ancient institutions is at least dormant and that, justified or not, they are all being subjected to close scrutiny with an eye to possible change.

The practice of medicine is a public service and entails definite obligations upon the practitioner and the public.

Let us consider what these obligations are on the part of each. I have listed what I consider the principal ones and I believe that there will be pretty general agreement as to their fairness.

#### OBLIGATIONS ON THE PART OF THE PHYSICIAN

1. Adequate education and professional training.
2. Proper appreciation of the sanctity of the physician-patient relation.
3. A high standard of professional ethics.
4. Proper recognition of one's own limitations and willingness to have adequate consultation.
5. An earnest effort to keep informed of medical progress through society meetings, books and journals, and post-graduate institutions.
6. Conscientious regard for the patient's economic status as the basis for fees.

#### OBLIGATIONS ON THE PART OF THE PUBLIC

1. Realization that only through medical research and medical practice has the life span been increased and the general level of health been elevated. And realization that only by adequately-trained physicians can medicine be practiced at all and that so-called philanthropic institutions, for all their wealth, cannot purchase or improve the public health without physicians.

2. Willingness to cooperate in prevention of disease by means of immunizations and sanitation.
3. Cooperation in scientific advances, and especially in the granting of autopsies.
4. Recognition of the earmarks of the charlatan and the fake. This is especially applicable to newspapers and magazines. If you wish specific names, I am pleased to name the *Cosmopolitan*.
5. An appreciation of the fact that medical ethics is primarily aimed at protecting the patient's interest and not at selfish gain for the physician.
6. Realization that a medical fee is a just obligation for a necessity of life, just as is rent, food, and clothing, and a willingness to pay it as promptly as possible.

Let us consider how well the above obligations are being discharged by both parties, the profession and the public.

As to the first obligation of the profession, that of adequate education and professional training, I need only to mention the steadily increasing standards of pre-medical education, at least three years in most medical schools, the rigid requirements for graduation from a medical school, and the almost universal serving of at least one year's internship by medical graduates. In addition, a large number of doctors are now serving from two to five years on the resident staffs in the various fields of medicine. These high standards have not been required by any governmental agency or by any other agency except the professional conscience and the urge for higher professional achievement.

As to the second professional obligation, the proper appreciation of the sanctity of the physician-patient relation, with rare exceptions there seems to be no cause for criticism on this score. It is true that there do exist a few rascals in medicine as in every walk of life, but in general even the severest critic of medicine does not accuse the profession of disregarding its duty to do its best for the sick and afflicted.

As to maintaining a high standard of professional ethics, it is safe to say that the code of medical ethics is more rigidly followed by its devotees than any other code

or standard in existence. It is true that there are occasional violations of some of the minor dictates of the code of the American Medical Association, but the great majority of instances are thoughtless neglect of what might be termed professional etiquette and do not reflect upon the integrity of the person involved so much as upon his manners. There are very few instances of such pernicious practices as fee splitting. Of course, there are outlaws in medicine as elsewhere, and these reflect discredit upon the profession as a whole, but all such individuals are not in good standing with their colleagues and sooner or later fail through their own rascality.

As to the fourth obligation of the profession, recognition of one's own limitations, witness the frequency of consultations among physicians. This is sometimes construed by the public as either an admission of ignorance or as an attempt to let a friend get a slice of the patient's bank roll. As a matter of fact, the exact reverse is true and the intelligent and fair-minded patient appreciates the fact that his doctor is willing to admit his limitations and not ashamed to ask for help when he needs it.

As to the fifth obligation of the doctor—to keep informed of medical progress—this meeting and hundreds like it attest the desire of the doctor for constant improvement. Most of us subscribe to several journals and read them. Our state and local and national meetings are well attended and the large clinics are the mecca of a constant stream of doctors seeking new ideas and new methods. Postgraduate courses are increasing in attendance in all parts of the country. I do not doubt that more intensive work is necessary along these lines but a constant effort is being made to extend medical knowledge and to diffuse it throughout the entire profession.

As to the sixth obligation for the profession—a conscientious regard for the patient's economic status as a basis for fees—there are few authentic instances of exorbitant fees. Dr. Fishbein, in discussing this question, says, "The physicians are the one group of the entire series of about 2,000,000 people interested in the care of

the sick who constantly regulate their fees downward to meet the needs of the patient from a financial point of view."

Let us next consider the obligations of the public as we have listed them.

1. Realization that only through medical research and practice has the life span been increased and the general level of health elevated.

The public seems to sense this fact vaguely. They feel that some gratitude is due the profession but they are impressed by the huge donations for health purposes by the foundations and the governmental appropriations rather than by the fact that these sums would be entirely useless except for the advances made by doctors in combatting disease and for the proper administration of these funds by doctors. Medical knowledge has not been patented and kept secret but has been published so that all who are interested may learn and use.

2. The second obligation of the public—a willingness to cooperate in the prevention of disease by immunization and sanitation—is being generally recognized and except in rare instances of gross ignorance there seems to be a real appreciation of the importance of this field of work.

3. The third obligation of the public—the cooperation in scientific advances—is one which is gradually being recognized by the public where sufficient educational work is being done. It is necessary to understand that much knowledge of disease is gained by means of autopsies and that this knowledge may be helpful to surviving members of the family in certain instances of hereditary disease and even if this is not the case it increases the sum total of medical knowledge and may be the means of saving other lives in the future. An autopsy does not mutilate the body and does not interfere with proper embalming.

4. The fourth obligation of the public—to try to recognize the charlatan and fake in medicine—is one which is often difficult for the layman but which would not be so if it were not for the pernicious influence of certain types of newspaper articles and of feature writers in magazines of national circulation. It is utterly inexcusable for *The Cosmopolitan* magazine to print such



articles as Rex Beach has recently been commissioned to write. It is all very well for the publisher to disclaim responsibility for the truth of the statements in the article but it cannot so easily escape the moral responsibility for the impetus it has given to patronage of its so-called "Miracle Men" by thousands of people who cannot afford the expense of the journey to the wonder-worker, and worse yet, for the loss of valuable time in cases who delay adequate treatment while they are chasing rainbows painted by the vivid pen of Rex Beach.

The public should learn to look with suspicion upon all doctors who advertise and who are too glib in interviews about their scientific accomplishments. It should be understood that all reputable scientific men publish their reports first in appropriate journals and not in newspapers and popular magazines. These scientific journals are available to newspapers but they are not sensational enough to interest the reporters and the claims are too modest to be interesting to the Rex Beaches.

5. The fifth public obligation—realization that medical ethics is primarily aimed at protecting the patient. The whole thought behind the code of ethics of the American Medical Association to which we subscribe is the thought of perfect fairness to the patient and to one's fellow practitioner. There is nothing selfish in the whole document. Some of the provisions may seem a trifle archaic in this age of hurried living and thoughtless manners but there is not one which is not directly or indirectly to the advantage of the patient.

Most intelligent laymen realize this fact and often preface their requests by asking the doctor whether he can ethically do thus and so.

6. The sixth obligation of the public—the realization that a medical fee is a just obligation for a necessity of life—is a matter which has been thrust into the foreground more and more by agitators for the recent conceptions of social justice. I am convinced that the vast majority of honest people in this country feel that a doctor's bill is an item of expense which is to be expected now and then and which is to be provided

for in a sane, businesslike manner. There have always been people who for one reason or another have been unable to pay their medical bills just as there have been people who could not pay their rent or food bills. Such people have always been given every consideration by their doctors and have continued to receive whatever medical attention they require without hope of compensation. There have always been rascals who make it a principle to avoid payment of a doctor's bill wherever possible but these are simply dishonest people who would also beat their grocery bills or clothing bills whenever possible. I sincerely believe that the average man is content with the present plan of medical fees and is perfectly willing to pay his doctor as promptly as possible. There has been a great agitation, however, in the past few years, largely financed by a few foundations of distinctly socialistic leanings for some form of regimentation of medicine. This idea has been adopted by a great host of uplifters and social service workers, some with excellent motives, no doubt, and some with motives less pure. These proponents of regimentation of medicine ignore the fact that by all bases of comparison the American public enjoys a better type of medical practice than does any foreign country and that in all countries where medicine has come under the control of the state there has been a lowering of medical standards and a consequent loss to health.

This idea of state medicine offers great political possibilities and there are signs that some politicians in high places are in a mood to exploit its possibilities just as they were exploited in Germany and England.

Dr. Olin West, Secretary of the American Medical Association, and himself a Tennessean and former member of this society, has well said, "There is no vital interest of the medical profession that is not also the interest of the public, though the public does not seem to know that this is true."

The medical profession feels very strongly that any regimentation on the part of the state would result in a serious blow to medical standards and consequently to the health protection of the public.

## CONCLUSION

If I have been correct in my conception of the mutual obligations of the medical profession and the public and if I have properly sensed the attitudes of the profession and of the public toward these obligations I think that we can conclude that in general the obligations are being discharged in a rather satisfactory manner to both parties concerned. There is some justifiable complaint on both sides but these are rather isolated instances and do not indicate a general feeling of dissatisfaction with the present system of medical practice. In spite of this fact, however, the country is flooded with propaganda for radical changes in the form of medical practice, demanding in most instances some form of political regulation of the practice of medicine. From what source does this propaganda originate? Does it come from the average man or woman you or I know? I think not. Does it come from the organized medical profession? Assuredly not. It comes from the well-paid walking delegates of a few foundations which have been insidiously won over to a socialistic philosophy and from a few starry-eyed theorists and uplifters whose tender hearts bleed for the sorrows of the world and who would change the whole structure of the world with one fell swoop in order to make everybody rich and happy and healthy. They would do this in part by lay control of a profession which in theory and in practice has always

sacrificed its own interests to those of the sick.

These poor deluded theorists and these clever walking delegates make a great noise and give the appearance of great numbers and influence. They deplore the lack of adequate medical care for the public and make believe that they also grieve for the underpaid physician. They are clamoring for legislation in the name of social justice and public health which would destroy in great measure the only safeguard of the public health, namely the medical profession, and would reduce the profession to the status of political vassals of lay directors. These groups have made themselves felt in high places and we are threatened with legislation which will deal a heavy blow to medicine and the public health.

I feel that it is the duty of our profession to acquaint the public with the truth of the situation and to support wholeheartedly the efforts of the legislative committees of our state and national societies in combatting these evil proposals.

I believe in the fundamental common sense and fairness of the American people and I believe in the genuine appreciation of the people for their doctors and I am convinced that once the threat to the public involved in recent radical trends toward regimentation of medicine is fully understood there will be an unequivocal denial of these false prophets who in the name of social justice are seeking to debase the noble profession of medicine.



## HEART DISEASE AND PREGNANCY\*

W. D. STRAYHORN, M.D., Norris

EVERY practitioner of medicine will likely be confronted at one time or another with the problem of advising a woman with heart disease relative to marriage, pregnancy, and the effects they might have on a diseased heart. The literature on the subject for many years was contradictory. Only in the past decade have accurate reports been made, and there is still need for more information.

In 1877, Angus Macdonald (1), an obstetrician of Edinburgh, collected from the literature and his own practice a series of twenty-eight cases of heart disease and pregnancy. Most of these cases had heart failure and a high mortality rate. The authors (2) (3) (4) (5) of books of obstetrics for many years following based their opinions on Macdonald's work, or ignored the question entirely. The result was that either no attention was paid to the heart during pregnancy, or the presence of valvular disease, especially mitral stenosis, was noted with alarm and given a grave prognosis. Both procedures were in error and led to difficulties.

In 1921, Sir James Mackenzie published his book on "Heart Diseases and Pregnancy" and gave new impetus to the solution of problems relating to this subject and particularly emphasized the importance of the functional ability of the heart as opposed to the pathological condition. Since that time there has been a rapidly increasing literature on the subject, but with published mortality figures varying from six per cent to eighty-five per cent (6), the need for more knowledge is apparent. During the eighteen months, from September 1, 1932, to March 1, 1934, ninety-three cases of heart disease were seen in the Cardiac Clinic of the Woman's Clinic of the New York Hospital. Every obstetric case appearing at the New York Hospital and the Berwind Clinic, a maternity center

handling cases in a comparatively large area in upper Manhattan, was given a complete physical examination. Those suspected of having heart disease were referred to the Cardiac Obstetric Clinic, where a more thorough study was made, and when the presence of heart disease was definitely established they were carefully followed by the same individual during prenatal visits, during hospitalization for delivery, and at their six weeks' post-partum visit, at which time they were usually referred to the General Cardiac Clinic.

Of the ninety-three cases of undoubted heart disease, thirty-four or thirty-seven per cent were primiparas. The remaining fifty-nine cases had undergone 183 pregnancies, resulting in 143 living children and forty abortions, only three of which were induced for therapeutic reasons. The maximum pregnancies in any one case were eleven. One subject had nine living children and developed symptoms of failure during her tenth pregnancy. Hence, while it is comforting to know that a subject with a damaged heart has successively met the increased demands of pregnancy, it should not lead us into a false sense of security regarding a subsequent pregnancy.

The ages of the group varied from nineteen to thirty-nine. No definite relationship between age and prognosis could be shown except that five out of the six subjects past the age of thirty-five developed symptoms of failure. While the number is small, it is deemed significant.

## DIAGNOSIS

The diagnosis of heart disease during pregnancy is made difficult because of certain physiological changes, due chiefly to the increased work. The minute output of the heart is increased (7).

Changes of the type usually associated with overactivity occur in the heart of the normal pregnant woman. These are: slight dyspnea and palpitation on exertion, rarely enough to cause a rest before going up

\*Read before the Tennessee State Medical Association, Nashville, April 9, 10, 11, 1935.

two flights of stairs; tachycardia; alteration in position of heart, the apex being in fourth space and in or slightly outside the midclavicular line; increased intensity of the mitral first sound and pulmonic second sound; a blowing systolic murmur frequently heard along the left sternal border, maximal in the third interspace.

Although these deviations from the normal nonpregnant woman complicate diagnosis, it is possible by careful history, physical examination, and laboratory studies to tell whether or not organic heart disease exists.

Thirty cases or thirty-two per cent of this series had no previous knowledge of heart disease. This large number of previously unrecognized cardiac cases is important in altering statistics regarding the mortality rate. In early reports this group was not considered. Of the ninety-three total, fifty-six patients or sixty per cent gave a history of having had either rheumatic fever, chorea, or severe attacks of tonsillitis.

On physical examination there was evidence of no cardiac enlargement in twenty-nine cases, slight enlargement in thirty cases, moderate enlargement in twenty-six cases, and marked enlargement in eight cases. Five of the eight cases showing marked enlargement developed moderate symptoms of failure. Of the five, one was interrupted at three months, three had Cesarean section at term, and one died of acute pulmonary edema at five and a half months. Hence, while patients with marked enlargement may go through pregnancy safely, it should be regarded as a sign of lessened cardiac reserve.

X-rays of the heart were an aid in determining presence of enlargement, and were a considerable help in demonstrating, by oblique films, enlargement of the left auricle in early mitral stenosis.

The electrocardiograph was of little help in either diagnosis or management. No consistent change in ventricular preponderance was noted. The rhythm was fundamentally regular in each case.

The anatomical diagnoses based on history, physical, and laboratory examination were as follows:

1. Mitral stenosis and insufficiency, sixty-one cases.
2. Mitral stenosis and insufficiency and aortic insufficiency, fifteen cases.
3. Mitral insufficiency alone, ten cases.
4. Mitral stenosis alone, two cases.
5. Mitral insufficiency and stenosis; aortic insufficiency and stenosis, two cases.
6. Aortic insufficiency alone, one case.
7. Coarctation of the arch of the aorta, adult type, one case.
8. Endocarditis — *streptococcus viridans* superimposed on an old rheumatic lesion, one case.

The diagnosis of uncomplicated mitral insufficiency is a difficult one to make with accuracy. The comparatively few cases occurring in this group are due primarily to the fact that we were unwilling to make the diagnosis on the presence of an apical systolic murmur alone. In each case, other supportive evidence was required, either a good history of rheumatic fever, knowledge of heart disease for many years, or evidence of enlargement. The absence of heart disease due to luetic and hypertensive etiology is striking. The sex and age group are probably largely responsible.

#### MANAGEMENT

Of most concern to both the patient with heart disease and the physician is the problem of predicting whether or not she can go to term, and if so whether or not she can go through labor. From the foregoing discussion it is evident that the patient's age, the number of previous pregnancies, the degree of cardiac enlargement, the murmurs, and character of lesions present are not reliable guides. What we really wish to know is what can the heart do or what is its functional capacity? Since it is heart failure, and not the valve involved or pathological lesion present that is important, it follows that early recognition of a failing heart, or of a low cardiac reserve, is more essential than debating over whether this or that valve is involved. The earliest warnings of failure are symptoms, particularly dyspnea and palpitation on exertion, later cough. These may soon be followed by dyspnea at rest, the cough may become productive, and blood tinged at



times. Finally, acute pulmonary edema, the most dreaded complication, may result. Of physical signs, persistent moist rales at the lung bases are the most helpful. Later engorgement of neck veins, enlargement of liver, and edema of the ankles may occur. The latter is not a dependable sign alone because of its common occurrence during pregnancy. Its interpretation must be based on other findings. I have never seen pitting edema of cardiac origin without other unmistakable signs of cardiac failure. The onset of failure in almost all cases is gradual. While pulmonary edema may come on suddenly during labor, careful attention to symptoms during the preceding weeks would have furnished warning.

With the view of grouping cases on a physiological basis, the classification of the American Heart Association was used. This consists of three groups as follows:

Class I—Patients with organic heart disease, but able to carry on ordinary physical activity.

Class II—Patients with organic heart disease, but unable to carry on ordinary physical activity.

Class II-A—Activity slightly limited.

Class II-B—Activity greatly limited.

Class III—Patients with organic disease, but unable to carry on any physical activity, i. e., who must remain in bed or chair (heart failure).

It is important to remember that the classification of a patient may change during the course of the pregnancy, and a Class I subject at three months may be a Class II-B or III at eight months. In order to clarify this point in the group of cases under discussion, the classification given was made at the time of labor, or at the time the pregnancy was terminated.

Of the ninety-three cases, forty-five or almost fifty per cent came in Class I, i. e., had organic heart disease, but were able to carry on ordinary physical activity. Two of this group went elsewhere and were not seen after the twenty-fourth and thirty-fifth week, respectively. A third case had a premature labor with a stillborn fetus at seven and a half months, without de-

veloping any signs of failure. A fourth case was interrupted at three months because of other complicating factors and not the heart disease. The remaining forty-one cases had normal labors and normal deliveries except for use of forceps to shorten the second stage.

Hence, it may be said that a patient at term who meets the requirements of Class I may be safely expected to go through a normal labor. This implies, however, careful attention to factors that might complicate labor, e. g., contracted pelvis, relative size of fetus and pelvis, number of previous pregnancies, etc. An attempt was made in each case to prevent a long second stage, since then the load on the heart is greatest. Accordingly low forceps were used in ten cases. Drug therapy, especially digitalis, is not necessary in this group.

Thirty patients were classed as II-A, i. e., had their activity slightly limited because of heart disease. One of these had a spontaneous abortion at three months, another a stillbirth at seven months. Pregnancy was terminated before the fifth month in four cases because of complicating factors, e. g., in one case a recent pregnancy with evidence of active rheumatic infection and increasing early symptoms of failure; a second had severe rheumatoid arthritis, with marked malnutrition and was bedridden; two cases because of frequent severe attacks of paroxysmal tachycardia.

Of twenty-four cases in this group that went to term, two had Cesarean sections, one subject with coarctation of the arch of the aorta of the adult type because of the danger of sudden severe overexertion producing a vascular accident rather than the danger of failure occurring; the other case because of a contracted pelvis. The remaining twenty-two cases had a normal labor, with the use of low forceps to shorten the second stage. It is worth noting that while a patient in Class II-A at term is a good risk, Class II-A in the early months of pregnancy warrants careful attention and not infrequently interruption. The earlier in pregnancy symptoms of failure appear, the more serious is their significance.

There were fifteen patients who had their activity greatly limited because of heart disease, and were placed in II-B. One of these had an interruption of pregnancy at three months. Nine were advised to have Cesarean section, and this procedure was done in seven cases. The other two left the hospital against advice. Five subjects in this group had normal labor.

No definite rules can be given for the best method of delivery in Class II-B cases, but unless there is certainty that labor will be short and easy, Cesarean section has been our choice. There were no serious complications following this operation.

Cases in this group were managed as follows: From the time their activity became restricted because of circulatory symptoms until the pregnancy was over, they were under constant supervision. An attempt was made to have them in the hospital for three weeks before and after delivery. During this time they were digitalized, and rested, and their response to treatment noted. By careful consideration of various factors, some of which were age, previous pregnancies, number of living children, the desire or advisability of future pregnancies, the advisability of sterilization, and the patient's religion, a decision was made as to method of delivery. When the patient's condition had reached the point that no further improvement was expected, that method was carried out. It is a good rule to follow, when a patient is in or near cardiac failure, delay labor as long as possible, in other words, play for time in which to treat the failure, and then go ahead with plans for delivery. The extra burden of operation on induced labor placed on a decompensated heart has not infrequently in the past been the cause of a fatal outcome. Every case in this group that was delivered by Cesarean section went to the operating room well compensated. They were given gas anesthesia until under and then open drop ether. They tolerated anesthetic and the operation as well as the normal patient.

There were only two cases in Class III. They merit particular mention because they are such striking examples of the dangers of neglect.

The first case was a twenty-two-year-old primipara with mitral stenosis and insufficiency, who was first seen when admitted to the hospital in labor with extreme dyspnea and cough. She had been told a year previously that she had heart disease and had had progressively increasing symptoms of failure until she was hardly able to be up during the last month of pregnancy. She had not consulted a physician.

Examination revealed a young woman in acute pulmonary edema, in the second stage of labor with an occiput posterior position. The heart rate was one hundred eighty, and the pulse and blood pressure could not be gotten. She was given morphine one-quarter grain and atropine one one-hundred-fiftieth; ouabain one-quarter milligram repeated at twenty-minute intervals for three doses; was put in an oxygen tent; blood-letting was done by a wide episiotomy without attempt to control the hemorrhage. The second stage was shortened by application of forceps and delivery of the baby. Digitalis was started as the effects of ouabain lessened. For twenty-four hours the pulse rate remained around one hundred fifty, but symptoms had become less, and both the mother and baby were able to leave the hospital after four weeks. She had a subsequent admission to the hospital because of heart failure precipitated by an acute upper respiratory infection. She was last seen fifteen months after delivery, and at that time her activities were markedly limited.

The second case was a twenty-eight-year-old primipara, with mitral stenosis and insufficiency, who had been told four years previously that she had a heart murmur. During her pregnancy she had increasing dyspnea, palpitation, and cough. She had repeatedly ignored the warnings of her family doctor until her condition became so bad she developed acute pulmonary edema at five and a half months and was rushed to the hospital. The usual measures of treatment such as morphine, ouabain, oxygen, and phlebotomy were tried, but without effect. She died two hours after being first seen.

Her history is significant in that for three months previous to death her symptoms



were gradually increasing, and her life could have undoubtedly been lengthened by proper treatment earlier in pregnancy.

### CONCLUSION

In view of these ninety-three cases, with only one death, we feel that with proper supervision it is safe for a woman with heart disease but without failure to undertake pregnancy. It is impossible to give an absolute assurance that the subject can go to term, but if carefully managed there will be ample time for interruption of pregnancy before failure becomes established.

A patient who has ever had cardiac failure should be advised against marriage and against pregnancy.

We do not feel that present information is sufficient for us to say whether or not the life span of a patient with heart disease is shortened by a pregnancy in which decompensation does not occur. Subsequent pregnancies should not be at less than three-year intervals.

With close cooperation between internist and obstetrician in the management of the pregnant woman with heart disease, the outlook is not nearly as bad as has been presented in the past. Neglected, the dangers are just as great, and the mortality just as high.

### BIBLIOGRAPHY

1. Macdonald, Angus: "On the Bearings of Chronic Disease of the Heart upon Pregnancy and Parturition." *The Obs. Rec. of Great Britain and Ireland*, 5:73, 1877.
2. Barnes: "System of Obstetrics, Medicine and Surgery." Lea Bros. & Co., Philadelphia, 1885.
3. Hirst: "American System of Obstetrics." Lea Bros. & Co., Philadelphia, 1889.
4. Playfair: "System of Midwifery." Lea Bros. & Co., Philadelphia, 1893.
5. Lusk: "The Science and Art of Midwifery." D. Appleton & Co., New York, 1875.
6. DeLee: "Textbook of Obstetrics."
7. Grollman, A.: "The Cardiac Output of Man in Health and Disease." C. C. Thomas, Springfield, Illinois, 1932.

### DISCUSSION

DR. PAUL L. WARNER (Nashville): Dr. Strayhorn has given us a series of cases that have been well managed, as his mortality shows. Of course, pregnancy is never to be wanted in a case of organic heart disease, as the absolute signs of organic cardiac disease are complicated by what

we call the functional hypertrophy or the functional changes during pregnancy.

If a diastolic murmur or a second or apical systolic murmur is present, with a recent history of rheumatic disease, a precordial thrill, irregular rhythm persistent after exertion, precordial friction rub, and expansile pulsation of the liver, any one of these conditions will give you the diagnosis of organic disease.

As has been pointed out, laboratory work and the electrocardiogram are of very vital help in prognosis.

There has been one test which probably will give us an index to the prognosis or to the severity of the cardiac reserve, which is the carbon dioxide combining power or the alkaline reserve.

As to treatment, Class I usually will go through labor in all except primipara, and they should be delivered by low forceps and episiotomy. Class II should always be delivered by some operative procedure, provided the patient is not embarrassed. In Class III, Cesarean section, either followed by sterilization or sterilization later, should be employed.

Vascular accidents should always be looked for following delivery, especially immediately after delivery in cases where the heart has been changed in its position to the mediastinum, due to certain relaxation of the pressure in the abdominal cavity.

If the patient shows cardiac failure in labor, it has ceased to be a surgical procedure and resolves itself into a medical case, because, regardless of the treatment, the mortality will not be decreased.

DR. C. S. BURWELL (Nashville): So far as I know, Dr. Strayhorn's record of one death in ninety-three cases is the most favorable record which has covered any considerable series of heart disease going through pregnancy. I believe that this success is based on several factors: First, Dr. Strayhorn has a considerable experience in heart disease itself; and, second, he has been a student of the effects of pregnancy upon the circulation.

Several years ago he did some work which showed that an effect of pregnancy upon the circulation was to increase the work of the heart, and he realized then that one of the obligations of the physician dealing with a pregnant woman with heart disease is to see that her heart is protected, in so far as is possible, against further overload.

There are a good many factors which overload the heart. Valvular disease itself usually imposes a burden on the heart. When to this is added the twenty-five or fifty per cent increase in work due to the pregnancy, the situation clearly may be a severe one.

It, therefore, is very important, I think, to prevent, so far as possible, certain other nonspecific things which increase the work of the heart. These include such things as: anemia, which is certainly

a prevalent thing in pregnant women; obesity; an excess of physical work for the individual; infections, especially respiratory infections and particularly when accompanied by cough; and anything which leads to an undue tachycardia. Many of these things can be prevented by judicious management on the part of the physician, and I believe they are all important, especially the management of the infections. Conservative management of the infections, which means putting the patient to bed, is probably a very helpful thing to do.

Finally, I think that Dr. Strayhorn's figures constitute one of the best demonstrations of the successful application of prenatal care one is likely to see.

DR. W. B. ANDERSON (Nashville): Gentlemen, I think this is one of the most useful, best worked-up papers we have had. When we consider that out of every 100 pregnancies one or two of those pregnancies will be associated with organic heart trouble, and when we consider that about twenty per cent of our maternal mortality is due to an organic heart lesion, we realize the importance of the subject.

I think that, when a young woman comes to you and is diagnosed as having an organic heart lesion, she should be advised against marriage. It is too often the case, though, that we do not know this woman has a heart until after pregnancy, and the strain of pregnancy brings about the fact that she has heart trouble, frequently a decompensating heart.

The hardest thing that I have to do is to give a prognosis in these cases. I think the classification of these cases into Classes I, II, and III is the best method we can use in giving a prognosis, and yet, as Dr. Strayhorn brought out, the time of pregnancy plays a great part in your classification. Class I at six months might be Class III before term of labor is up.

Very few of us are good enough at examining heart lesions to give a prognosis with just the murmur alone or even from the size of the heart. It is the function, after all, that counts, and in the management of these cases Class I usually goes through the pregnancy, labor, and puerperium very well; Class II requires much more attention, and personally I think a Cesarean as a rule is the best way out of it, with the opportunity offered to sterilize the patient, and I believe in sterilizing the patient even in Class II. In Class III, so often the case is such and the patient's condition is so bad that you are doing well to do the Cesarean without sterilization. In Class III I believe thoroughly in delivering the patient by Cesarean with local anesthesia and plenty of morphine.

DR. W. K. SHEDDAN (Columbia): Mr. President, Gentlemen of the Tennessee State Medical Society: I did not hear the paper—I tried, I tried very hard. I did not get much out of the dis-

cussion; I do not know what they were discussing, whether it was brain injury or heart disease.

I want to say to the essayist and the other youngsters who have been submitting this subject that after fifty-six years of the practice of medicine and with 1,500 deliveries to my credit, 1,553 (and I have no idea how many of them were complicated by organic heart disease—I have not kept any record of that), I have got my first patient to die from an organic heart disease as a result of pregnancy. I realize that pregnancy complicates these organic heart diseases, but go on and treat your heart lesion; that is, take care of your patient. The treatment of heart disease is the proper care of the patient. It is not a question of drugs; it is a question of care.

A large per cent of our cardiac lesions are dangerous, myocardial lesions and lesions of the coronary arteries. I used to have an idea, a long while before we got it out of our heads, that if you just had a murmur you did not have heart trouble. I find in my recent years, at least in the last twenty-five or thirty years, especially since Sir James Mackenzie's work came out on heart disease, that murmurs play a very insignificant part in the diagnosis of heart disease. It is the reserve force of the heart that you have got to take into consideration, and with the pregnant woman you have got to conserve that reserve force, put her to bed, give her absolute rest, and impose as little upon that heart as possible.

I think a woman has to be pretty plucky and have a good deal of reserve left to stand Cesarean section with the ordinary heart lesion. I think she would have to have a good deal of heart force to take an induced abortion in connection with a heart lesion.

As I said, with 1,553 cases of labor at term, I had only one death, which did not come from heart disease; it came from a post-partum hemorrhage; that was my only death in the whole 1,553 cases and in fifty-six years of work. I have tried to do my work honestly, I have tried to study my cases and to see what conditions I had, and heart disease today is one of the most common. It is the myocardial and the coronary diseases that are the most common of all. The lesions are comparatively rare in my experience these days that give rise to any symptomatology outside of a simple valvular murmur in which the reserve force of the heart is very much lower.

I am carrying an organic heart lesion myself that I have been carrying for thirty years. Thirty years ago I realized that I had a myocardial condition, and I began to take care of myself and to conserve the reserve force of that heart, and today I am going along about as comfortably as could be; in fact, more comfortably than I did twenty-five or thirty years ago when I did not so carefully conserve the heart force.

The conservation of the heart's energy is one of the most important things in the management



of cardiac lesions. Of course, the patient's general condition should be looked after, with good food, with rest, a liberal supply of liquids, and things of that kind.

As I said just now, I cannot conceive of an organic heart lesion frequently so serious as to impair the patient's life who can stand a Cesarean section.

DR. W. D. STRAYHORN (closing): Mr. President and Gentlemen: I want to express appreciation for the discussion of the paper. There are a few points I would like to emphasize. The one that Dr. Burwell brought up in regard to infection is quite important in the management of the cases, and not only important in producing failure, but frequently of extreme importance in diagnosis in distinguishing from failure. That is particularly true in cases where there is bronchitis or bronchopneumonia; with an increase in respiratory symptoms and tachycardia, it is frequently very difficult to be certain whether we are dealing with circulatory failure or a pulmonary infection.

One of the points that Dr. Anderson brought out was with regard to sterilization, which I had not mentioned in the paper. That was carried out in selected cases, depending upon the patient's reaction and other factors at the time of Cesarean section where that method of delivery was decided advisable.

There is one question that comes up in regard to sterilization that we have not mentioned at all, and that is the patient's reaction toward our advice. The subjective response of the patient is very important. It is frequently a deciding factor. We might consider three groups in that respect: First, cases that we feel reasonably certain will go through a pregnancy; secondly, those that we feel reasonably certain will not, and in those two we can take a decided stand; then there is a middle group, one that consists of a comparatively large number of cases that we feel uncertain of one way or the other, and not infrequently in that group the patient's desires will play a decided part in the final decision that is made regarding sterilization.

# MANAGEMENT OF THE OCCIPITOPOSTERIOR POSITION, WITH A REPORT OF 728 CASES\*

MILTON SMITH LEWIS, M.D.,\*\* Nashville

**M**ANY OF THE recent publications on the management of occipitoposterior positions advocate an active form of treatment involving intervention at a stage of labor which is too early to permit the occurrence of spontaneous anterior rotation.

In the management of occipitoposterior positions, the maternal and fetal injury still remains too great, and the loss of infant life as the result of various forms of operative delivery is far greater than it should be. Therefore, the occipitoposterior position still remains the most important complication of obstetrics. It is important from the standpoint of frequency, the difficulties encountered and the responsibilities involved.

## FREQUENCY

In regard to its frequency, there is a wide variance of opinion. The incidence is difficult to estimate because many of the primary positions are not recognized during labor. The percentage given by various authors ranges from ten to thirty per cent. Potter states that he finds it in sixty to seventy per cent of his cases, because he examines them early before rotation has occurred. Regardless of this we all agree today that primary posterior positions are much more frequent than we formerly believed. In the majority of cases the head will rotate spontaneously to an anterior position, but in a large percentage the rotation will occur only after hours of prolonged labor and in a considerable proportion of cases there will be either no rotation or the occiput will rotate posteriorly.

In this series the incidence is shown in Table I:

TABLE I

|                        | <i>Vertex</i> | <i>Occipito-posterior</i> | <i>Per Cent</i> |      |
|------------------------|---------------|---------------------------|-----------------|------|
| Vanderbilt Hospital--  | 1,880         | 437                       | 23.2            |      |
| General Hospital----   | 4,345         | 235                       | 5.4             | 10.7 |
| St. Thomas Hospital--  | 573           | 56                        | 9.7             |      |
| Sloane Hosp., N. Y.--- | 20,000        | 2600                      | 13              |      |
| Johns Hopkins-----     | 5,488         | 635                       | 11.6            |      |

The number of occipitoposterior positions at the Nashville General Hospital was probably twice as great as is here indicated, but owing to the fact that many of our patients were not examined until they were well advanced in the second stage of labor, obviously, some were not recognized before rotation had taken place. Therefore, many cases in which rotation takes place with little or no difficulty are likely to be overlooked by the more casual observer, the persistent cases only being recognized.

## DIAGNOSIS

The early diagnosis of occipitoposterior position is of paramount importance if the case is to be managed properly. In many instances an accurate diagnosis is possible from abdominal palpation alone, but should always be confirmed by vaginal examination. Early positive diagnosis is not often easy. Nevertheless, I would like to emphasize some of the important points of diagnosis. Consider, for instance, a right occipitoposterior, in which we feel the fetal head over the symphysis pubis with the cephalic prominence or brow nearer the mid-line than the occiput, thus showing a deflexion of the head. The anterior shoulder also is felt away from the mid-line and approaching the flank. The resistance of the back is well in the flank, the small parts to the front and center. The plane of the fetal triangle which is formed by the back, arms, and thighs gives further evidence as to the degree of rotation. The fetal heart will be heard usually in the same flank, although it may be heard in the opposite lower quadrant when the deflexion has thrown the chest against the abdominal wall, suggesting a diagnosis of the opposite

\*Read before the Tennessee State Medical Association, Nashville, April 9, 10, 11, 1935.

\*\*From the Department of Obstetrics, Vanderbilt University, Nashville, Tennessee.



anterior position. The position of the fetal heart and small parts, while corroborative, are conducive to an erroneous diagnosis if relied on to any great extent.

Vaginal examination: Early in the first stage of labor before an extensive caput formation, and when the cervix is thin or dilated sufficiently to permit the palpation of the sutures and fontanels, vaginal examination will disclose the sagittal suture in an oblique diameter of the pelvis, converging posteriorly with the two lamboidal sutures to form the usually obliterated posterior fontanel and anteriorly terminating in the larger more rectangular anterior fontanel with its four radial sutures. The anterior fontanel is felt in front near the iliopectineal eminences. When the head is extended it is easily felt. The posterior fontanel, on the other hand, is difficult to palpate. The posterior fontanel is usually felt near the center of the os. The occipital bone is toward the sacroiliac synchondrosis. One is often able to palpate both fontanels on complete dilatation.

If the conditions are favorable, much may be learned from vaginal examination; the amount of flexion or deflexion, the height of the two fontanels, the degree of engagement, the amount of dilatation, the effacement of the cervix, backward location of cervix, the condition of the bags of water, and the amount of molding.

The examination, if possible, should be made during a pain to estimate the direction of internal rotation and the amount and probable course of descent. Positive diagnosis of the condition must often be held in abeyance until dilatation of the cervix is sufficient to admit several fingers for palpating of an ear and noting the direction of the larger freer portion of the auricle. A positive diagnosis then can be made.

The course of labor is rather characteristic in the persistent posteriors, because of lack of adjustment between the fetal head and the lower uterine segment. A very long first stage of labor including slow dilatation with ineffective pains and early rupture of membranes should indicate that you are probably dealing with a posterior presentation. It also should be remembered that in

anterior positions there is rapid progress in dilatation and descent with good labor pains. Absence of such progress should at once put one on guard. Finally in any vertex case in which the back is on the right side, an occipitoposterior should be suspected and treated as such until proved otherwise.

The study here reported includes all cases of occipitoposteriors that occurred in the Nashville General, Vanderbilt University and St. Thomas Hospitals during the past six years. The majority of these patients were delivered within the hospital by the resident staff or a member of the attending staff. All patients delivered at St. Thomas Hospital were delivered by their private physicians.

In this series of 6,798 cases of vertex presentation, occipitoposterior positions occurred 728 times or 10.7 per cent. Of these 305 were primiparæ and 423 were multiparæ. The R. O. P. position occurred 490 times or sixty-seven per cent, and the L. O. P. position occurred 238 times or thirty-two per cent. Anterior rotation occurred spontaneously in the R. O. P. group 317 times or sixty-four per cent. In the L. O. P. group it occurred 132 times or fifty-five per cent, leaving 236 cases or 32.4 per cent, respectively, persistent posteriors.

TABLE II

|                                           |       |
|-------------------------------------------|-------|
| Total Vertex Presentations-----           | 6,798 |
| Posterior Positions -----                 | 728   |
| R.O.P. 490 (Spontaneous Rotation—317—65%) |       |
| L.O.P. 238 (Spontaneous Rotation—132—55%) |       |
| Primiparæ -----                           | 305   |
| Multiparæ -----                           | 423   |

The cases reviewed have been classified into six main groups for the purpose of presentation and study.

TABLE III

|                                                    | Number<br>Cases | Per<br>Cent |
|----------------------------------------------------|-----------------|-------------|
| <i>Group One</i>                                   |                 |             |
| Spontaneous Rotation and Delivery--                | 289             | 67.5        |
| Spontaneous Rotation and Forceps--                 | 203             |             |
| <i>Group Two</i>                                   |                 |             |
| Persistent Posterior Spontaneous<br>Delivery ----- | 87              | 18.1        |
| Persistent Posterior and Forceps----               | 45              |             |
| <i>Group Three</i>                                 |                 |             |
| Manual Rotation and Spontaneous<br>Delivery -----  | 12              | 5.3         |
| Manual Rotation and Forceps-----                   | 27              |             |

|                        |    |      |
|------------------------|----|------|
| <i>Group Four</i>      |    |      |
| Scanzoni .....         | 25 | 3.4  |
| <i>Group Five</i>      |    |      |
| Version .....          | 32 | 4.3  |
| <i>Group Six</i>       |    |      |
| Cæsarean Section ..... | 8  | 0.11 |

Group One—Spontaneous anterior rotation of the occiput from posterior position occurred 492 times or 67.5 per cent. Two hundred eighty-nine or 58.7 per cent were delivered spontaneously. Two hundred and three or 41.2 per cent were delivered by forceps after spontaneous rotation. There were no fetal deaths.

It is the general opinion that ninety per cent of all posterior positions will rotate spontaneously if left alone. In this series 492 or 67.5 per cent rotated after an average duration of labor of eighteen hours in the primiparæ and ten hours in the multiparæ.

Group Two—Persistent posterior position delivered without rotation occurred in 132 cases or 18.1 per cent. Of these there were eighty-eight primiparæ and forty-four multiparæ. Eighty-seven or sixty-five per cent were delivered spontaneously. Forty-five or thirty-four per cent were delivered by forceps. The fetal loss was six.

Group Three—Includes thirty-nine cases or 5.3 per cent which were rotated manually to an anterior position. Twelve cases or thirty per cent were delivered spontaneously. Twenty-seven or sixty-six per cent were delivered by forceps, with no fetal loss.

Group Four—Includes twenty-five cases or 3.4 per cent which were delivered by the modified Scanzoni maneuver, with no fetal loss.

Group Five—Includes thirty-two cases or 4.3 per cent which were delivered by internal Podalic version. Two mothers with Bandl's ring died. One suddenly died on the table from shock and one died of infection on the seventh day post partum. Eight infants were lost.

Group Six—There were eight cases or 0.11 per cent which had Cæsarean section performed for indications other than occipitoposterior position; five for contracted pelvis, two for eclampsia, and one for tuberculosis. There was no maternal loss. One infant death.

Taking the series of 728 cases as a whole, operative interference was required 439 times or 60.2 per cent; for R. O. P. group 220 times or forty-four per cent; for L. O. P. group 121 times or fifty per cent.

TABLE IV  
MANAGEMENT OF POSTERIOR POSITION AT THREE HOSPITALS

| <i>Method of Delivery</i>                        | <i>Vander-</i> | <i>bilt</i> | <i>General Thomas</i> | <i>St.</i> | <i>Total</i> |
|--------------------------------------------------|----------------|-------------|-----------------------|------------|--------------|
| Spontaneous Rotation and Delivery .....          | 190            | 84          | 15                    |            | 289          |
| Spontaneous Rotation and Forceps .....           | 165            | 26          | 12                    |            | 203          |
| Persistent Posterior and Spontaneous Delivery .. | 2              | 78          | 7                     |            | 87           |
| Persistent Posterior and Forceps .....           | 11             | 25          | 9                     |            | 45           |
| Scanzoni .....                                   | 23             | 1           | 1                     |            | 25           |
| Version .....                                    | 15             | 10          | 7                     |            | 32           |
| Manual Rotation and Spontaneous Delivery ..      | 7              | 5           | 0                     |            | 12           |
| Manual Rotation and Forceps .....                | 18             | 4           | 5                     |            | 27           |
| Cæsarean Section .....                           | 6              | 2           | 0                     |            | 8            |
| Total .....                                      | 437            | 235         | 56                    |            | 728          |

Of the 437 cases at Vanderbilt Hospital, 355 or eighty-one per cent rotated spontaneously, 190 or forty-three per cent were delivered spontaneously. One hundred sixty-five or thirty-seven per cent were delivered by forceps.

Of the 235 cases at General Hospital, 110 or forty-six per cent rotated spontaneously, eighty-four or thirty-five per cent were delivered spontaneously. Twenty-six or eleven per cent were delivered by forceps.

Of the fifty-six cases at St. Thomas Hospital, twenty-seven or forty-eight per cent rotated spontaneously, fifteen or twenty-six per cent were delivered spontaneously. Twelve or twenty-one per cent were delivered by forceps.

Of the 437 cases at Vanderbilt Hospital, thirteen were persistent posteriors, or 2.9 per cent. Two were delivered spontaneously and eleven were delivered with forceps. Of the 235 cases at the General Hospital, 103 or forty-three per cent were persistent posterior positions. Seventy-eight or thirty-three per cent were delivered spontaneously and twenty-five or ten per cent were delivered with forceps. Of the fifty-six cases at St. Thomas Hospital sixteen or



twenty-eight per cent were persistent posterior positions. Seven or twelve per cent were delivered spontaneously and nine or sixteen per cent were delivered with forceps.

This appears to be a large number to be delivered by this procedure, but it is ample proof that labor can be terminated in this manner, contrary to popular belief.

Of the 437 cases at Vanderbilt, twenty-three or 5.2 per cent were delivered by the Scanzoni maneuver. One at the General Hospital and one at St. Thomas were delivered by this maneuver.

Version: Vanderbilt Hospital, fifteen cases or 3.4 per cent. General Hospital, ten cases or 4.2 per cent. St. Thomas, seven cases or 12.5 per cent.

Manual rotation and spontaneous delivery: Of the 437 cases at Vanderbilt, seven cases or 1.6 per cent. Manual rotation and forceps delivery, eighteen cases or 4.1 per cent. Of nine cases or 3.8 per cent at General Hospital, five were delivered spontaneously and four with forceps. Of the fifty-six cases at St. Thomas, five cases or 8.9 per cent were rotated manually and all delivered with forceps.

Cæsarean section—Of the 437 cases at Vanderbilt there were six Cæsarean sections. Of the 235 cases at General Hospital there were two Cæsarean sections. There was no Cæsarean section at St. Thomas.

#### ANALYSIS OF FETAL MORTALITY

|                                                     |    | <i>Per Cent</i> |
|-----------------------------------------------------|----|-----------------|
| Spontaneous Rotation and Delivery----               | 2  | 0.7             |
| Spontaneous Rotation and Forceps-----               | 2  | 0.9             |
| Persistent Posterior and Spontaneous Delivery ----- | 0  |                 |
| Persistent Posterior and Forceps-----               | 6  | 13.3            |
| Manual Rotation and Spontaneous Delivery -----      | 0  |                 |
| Manual Rotation and Forceps-----                    | 0  |                 |
| Scanzoni Maneuver -----                             | 0  |                 |
| Version and Breech -----                            | 8  | 25              |
| Cæsarean Section -----                              | 1  | 12              |
| Total -----                                         | 19 |                 |
| Monstrosities -----                                 | 5  |                 |
| Toxemia -----                                       | 4  |                 |
| Placenta Previa-----                                | 1  |                 |
| Premature -----                                     | 2  |                 |
| Prolapsed Cord -----                                | 1  |                 |
| Total -----                                         | 13 |                 |

A comparison of the various operative methods in relation to fetal death reveals some striking results.

In the spontaneous rotation with spontaneous delivery group there were two fetal deaths in 289 cases or 0.7 per cent.

In the spontaneous rotation with forceps delivery group there were two fetal deaths in 203 cases or 0.9 per cent.

In the persistent posterior with forceps delivery group there were six deaths in forty-five cases or 13.3 per cent. Two were delivered with high forceps and four with mid forceps.

In the manual rotation with spontaneous and forceps delivery group there were no fetal deaths in thirty-nine cases.

In the twenty-five cases delivered by Scanzoni maneuver there were no fetal deaths.

In version and breech delivery there were eight fetal deaths in thirty-two cases or twenty-five per cent, all due to cerebral hemorrhage. All but two had a prolonged labor of thirty-six hours or more.

In the Cæsarean section group there was one death in eight cases or twelve per cent.

It is evident, therefore, that the gross operative fetal mortality is much higher than in the spontaneous births as a whole, being 5.4 per cent in the former and 1.5 per cent in the latter.

Failure of anterior rotation occurred in 32.4 per cent of the total. Failure of rotation is therefore a primary factor in fetal wastage and accordingly demands proper correction in due time, the longer correction is delayed, the greater the fetal risk. The average duration of labor in the operative series terminating in fetal death was twenty-five hours, whereas the average duration in successful results was fourteen and one-half hours.

Monstrosities and nonviable babies up to seven months have been excluded because their loss is in no way due to the position. Included in this series of cases there were five monstrosities, four toxemias, one placenta previa, two prematures, one prolapsed cord, a total of thirteen deaths not due to the position.

In all there were thirty-two fetal deaths

or a gross mortality of 4.3 per cent or a corrected mortality of 2.6 per cent.

### MATERNAL MORTALITY

The maternal mortality in this series of cases was three or 0.41 per cent.

Two mothers, both with Bandl's ring, died following version and breech extraction, one from immediate obstetrical shock and the other from puerperal septicemia on the seventh day post partum. The remaining death occurred on the third day post partum in a patient with chronic nephritis following a manual rotation with forceps delivery.

### MORBIDITY

|                                               | <i>Per<br/>Cent</i> |
|-----------------------------------------------|---------------------|
| Spontaneous Rotation and Normal Delivery---   | 7.9                 |
| Spontaneous Rotation and Operative Delivery-- | 25                  |
| Persistent Posterior and Normal Delivery----  | 11.9                |
| Persistent Posterior and Operative Delivery-- | 48                  |
| All Spontaneous Deliveries-----               | 13.8                |
| All Forceps Deliveries-----                   | 36.5                |
| Version -----                                 | 35                  |
| Scanzoni -----                                | 32                  |
| Cæsarean Section -----                        | 66                  |

The standard of morbidity used in this study includes all cases in which a temperature of 100.4 F. appeared at any time excluding the first twenty-four hours following delivery, from any cause whatsoever without any attempt to eliminate those which were not strictly obstetrical.

The apparent high morbidity is to be explained by the rigidity of the standard used. Under any other standard, such as the British Medical Association, the morbidity would have been considerably lower.

The maternal morbidity in all spontaneous deliveries was 13.8 per cent.

The morbidity for all forceps cases was 36.5 per cent.

The morbidity for all persistent posterior cases with normal delivery was 11.9 per cent, but forty-eight per cent for all operative deliveries.

In all other operative deliveries the morbidity was thirty-three per cent, including version, Scanzoni and Cæsarean section.

One should therefore expect a higher morbidity in operative procedures. In fact the "higher up" in the generative tract one goes, the greater is the likelihood of infection.

Persistent posterior position with operative delivery showed a morbidity of forty-eight per cent. The most likely reason for this is the natural tissue devitalization associated with an anomalous position and the prolongation of labor which is usually present in these cases. It is therefore obvious from this analysis that occiput posterior persistent birth, whether spontaneous or operative, increases the morbidity rate tremendously.

### MANAGEMENT

Many methods have been advocated for the management of the occipitoposterior position. We all will agree that in the great majority of cases anterior rotation will occur at some time during the course of labor. From personal experience and from figures obtained, I believe "the majority" should go unqualified.

When rotation takes place, the individual case is no different from what would occur if the occiput had been anterior except that labor is usually longer.

During the first stage of labor, no interference should be attempted. Dilatation should be allowed to proceed normally and should be accomplished by the forces of nature. Since the first stage is usually prolonged, the attendant should not allow the patient to become exhausted physically or mentally. Therefore, one must endeavor to relieve the patient by the free use of analgesics. Her bladder and rectum should be emptied as required, and sustaining fluids should be administered in the form of fruit juices and water. One should be guided in the administration of analgesics not by the amount of dilatation but rather by the patient's discomfort. The routine use of sodium amytal, morphine, and scopolamine is begun and repeated at intervals sufficient to permit rest and sleep. This will enable the patient to reach the second stage of labor with her physical and mental forces as nearly intact as possible. Adequate sedation, in my opinion, is the keynote of success in the management of the majority of posterior positions. Not only does it guarantee sufficient rest for the patient, but it also prevents the physician from yielding to the appeals of the patient and her family, thus calling for early interference. The physi-



cian, if he is sensible, will take a well-earned rest or even disappear entirely during this time, and finally when the patient becomes restless and demands his presence an examination will often show full dilatation with complete rotation.

Occasionally when dilatation is prolonged and it is feared that too great prolongation of the labor will result in exhaustion of the mother, dilatation may be completed with a bag or with manual dilatation. Patience is the great desideratum in the treatment of occipitoposterior positions. The time of intervention varies much, depending on the condition of both mother and baby.

At the beginning of the second stage of labor, the obstetrician must observe the further progress of labor carefully. It is desired, if possible, that descent and anterior rotation of the head should proceed normally and spontaneously. However, the second stage of labor should not be allowed to proceed longer than two to four hours before interference is resorted to, for it has been our experience that contraction rings are very apt to develop if labor is prolonged much beyond this point. This observation we particularly want to emphasize, for it occurred twice in this series of cases with fatal results for both mothers and babies.

What are the chief causes of failure of rotation? The common causes of failure are: imperfect flexion, inadequate uterine force, a poorly developed or relaxed pelvic floor, and the inability of the fetal trunk, the back, and the shoulders to move forward toward the symphysis. As long as the shoulders are prevented from rotating, so long must the rotation of the occiput fail. This is a frequent cause of failure of rotation in attempts at either manual or forceps rotation of the occiput in the pelvis, inasmuch as, on the removal of the hands or forceps, the occiput immediately swings back to its original position. The cause of failure of rotation of the shoulders is commonly found to be an internal contraction ring, situated around the child's neck, or just in front of the shoulders.

It is evident that any method aiming at operative delivery which fails to take note

of this fact must necessarily be met with many difficulties or even failure.

It is just as important to select the proper time for delivery as it is to select the proper method of delivery. Waiting too long after the onset of the second stage of labor to interfere may be equally as hazardous as interfering too early.

It should be emphasized that these cases should be approached with an open mind, prepared to do whatever in your judgment is safest and best. It is, of course, understood that the physician has previously eliminated any undue disproportion or other condition obstructing the birth canal. In such cases, elective Cæsarean section should be the procedure of choice.

Having determined the time for interference, then the question arises, Which is the best and safest method? This should be determined by the conditions present, or the method in which the operator is best trained. Since 67.5 per cent in this series of cases rotated spontaneously and required very little assistance, the remaining thirty-two per cent which we may term "persistent occipitoposterior positions" required some method of assistance, either version, manual rotation, or rotation by the use of forceps; after this is done, the patient is left to deliver by natural forces or to be aided by immediate forceps extraction, the choice of which will be left to the operator.

It is our opinion, in those cases where dilatation is complete and when the occiput has not or has only partially entered the brim of the pelvis, version and breech extraction deserves a very definite place in the management of the posterior position if there is no pelvic contraction and is the procedure of choice. Version was required in thirty-two cases, or 4.3 per cent, in this series.

If the head is engaged or low in the pelvis, manual rotation followed by forceps extraction is then the procedure to be chosen.

Regarding the method of rotation, there are many individual preferences, but it is hard to see why the human hand should not excel all instruments for this purpose, for it has the power of sensation and perception and should be used up to the point of its limitations, then succeeded by less safe,

though necessary, means. In recommending operative measures to the general practitioner, and it is he who still conducts the majority of the deliveries, one must be conservative, because he has not had the opportunity to acquire the great amount of skill needed to improve on nature's method.

If the operator fails in manual rotation, forceps delivery with the occipitoposterior is usually possible. Whatever the method of delivery, especially in a primipara, a mediolateral episiotomy is advisable. Delivery is thus facilitated, and deep perineal laceration avoided.

My own choice of procedure is the manual rotation of the occiput by the method of Danforth. Rotation should not be attempted before dilatation is complete, nor should it be done until the head is well engaged. If interference becomes necessary before engagement has occurred, version is indicated. If after two or at most four hours of active second stage labor rotation has not occurred, active interference is indicated.

The position of the head should always be accurately determined by the palpation of the posterior ear in order that one may begin with an accurate knowledge of the position. We will assume, first, the existence of a right occipitoposterior. Under deep anesthesia, the right hand is introduced and the head grasped with the fingers and thumb, which are spread out as much as possible in order that such force as may be used shall be distributed as widely as possible over the fetal head. At the same time the left hand is applied to the mother's right lower flank, as nearly as possible under the fetal shoulder. Simultaneously then, the hand within the vagina grasps the head and the external hand rotates the head and body toward the maternal midline. It may be necessary to grasp the head a second time if the maneuver is not completed with the first grasp. If the thin fetal skull gives under the fingers, the grasp may be shifted. The position should be slightly over corrected so that the occiput at the conclusion of the maneuver will be slightly to the left of the mid-line. If the head will not rotate easily at the level at which it lies at the beginning of the maneuver, it may be necessary to displace it upward. In

an occasional case, if the head is difficult to move, the right hand may be passed beyond the head and the shoulders may be pushed around. After the rotation is completed with the hands, the thumb is withdrawn, leaving the fingers of the right hand in contact with the lateral aspect of the head. In the more frequent R. O. P. this contact of the fingers should be against the cheek or jaw of the infant. The left blade of the forceps is then introduced by the operator with his left hand, passing the blade inside the fingers of the right hand which still remains in place. After this blade is introduced, an assistant holds the handle, at the same time exerting gentle traction laterally. This causes a gentle lever action to be produced, the blade of the forcep causing pressure against the child's face instead of the operator's hand, thus hindering backward rotation. The right blade is then introduced and the blades closed. With one or two fingers the operator assures himself that the occiput remains anterior. Extraction may now be accomplished.

If the position is a left occipitoposterior, a similar procedure is carried out. The internal part of the rotation is done in a similar manner, although in the opposite direction. After rotation has been accomplished, it is usually best to make pressure with the fingers of the internal hand against the lateral aspect of the occiput rather than the lower part of the face in order to prevent backward rotation.

One should particularly beware lest the apparent descent of a markedly molded head, and this impression may be increased by the presence of a caput succedaneum, cause the operator to assume that the head is much deeper in the pelvis than it really is. An error of this sort may lead to unexpected operative difficulties.

We prefer the method of manual rotation for the following reasons: First, by using the hand the operator is able at all times to know whether the head is responding to manipulation or not; second, if rotation is not easily accomplished at the level at which the head is found, the head may easily be pushed upward or disengaged if necessary; third, there is a notable freedom from deep upper vaginal tears which are



rather likely to occur in forceps rotation; fourth, fetal mortality is less.

The procedure described above was carried out successfully in thirty-nine cases, or 5.3 per cent. In five additional cases rotation failed, and version was performed.

The remaining method of delivery deserves only brief discussion. This is commonly known as the Scanzoni maneuver. It consists, in principle, of application of forceps to the sides of the head and rotation of the head so grasped, until the forceps are "upside down," then the removal of the forceps and a reapplication as would be done after manual rotation. This method has many advocates and many opponents. However, all agree as to the danger involved to the child and to the mother, and almost all advocates of the method, as well as the opponents, emphasize the belief that the procedure is unsafe except in the hands of an expert.

It is our opinion that, for the physician who has only the average training in obstetrics, the best treatment of the posterior position is the conservative. This takes into consideration the realization that at least seventy to seventy-five per cent will rotate spontaneously. Then, when indicated, interference may be resorted to according to the demand of the individual case. For the physician who has considerable training and experience, we still believe the conservative treatment to be the best choice.

#### SUMMARY

1. Occipitoposterior positions, because of frequency and difficulties encountered, still remain a major obstetrical problem.

2. Early diagnosis is essential for success.

3. Spontaneous rotation occurred in 67.5 per cent of cases reported.

4. Adequate relief by analgesics during the first and second stage of labor is one of the keynotes in the management of the occipitoposterior position.

5. Watchful waiting is the keynote to success. Allow two to four hours in the second stage of labor if maternal and fetal conditions permit. Do not interfere too soon. It is just as important to select the proper time for delivery as it is to select the proper method of delivery.

6. Importance of recognizing a contraction ring is a frequent cause of delay. This is by no means a rare occurrence.

7. Version is the procedure of choice when the occiput has not entered or has only partially entered the brim of the pelvis. It should be remembered, however, that the fetal mortality is very high. In this series there were thirty-two versions with a mortality of twenty-five per cent.

8. Operative interference was required in 60.2 per cent of cases reported.

9. Operative fetal mortality was 5.4 per cent. In spontaneous births the fetal mortality was only 1.5 per cent. The longer failure of rotation is delayed, the greater the fetal mortality. The average duration of labor in the operative deliveries was twenty-five hours; in the spontaneous deliveries, fourteen hours.

10. Gross fetal mortality was 4.3 per cent. Corrected mortality was 2.6 per cent.

11. Persistent occipitoposterior birth, whether spontaneous or operative, increases the morbidity rate, 11.9 and forty-eight per cent.

12. Maternal mortality in this series of cases was three, or 0.41 per cent.

13. Manual rotation is the procedure of choice when the head is engaged and operative interference is indicated after a reasonable length of time.

14. It is our opinion that conservative treatment of the occipitoposterior position is the procedure of choice.

#### BIBLIOGRAPHY

1. Reddoch, J. W.: *So. Med. Jour.*, Vol. 27, No. 7, pages 615-617, July, 1934.
2. Vinsont, C. C.: *Tenn. State Med. Assoc.*, Vol. 25, No. 7, page 251, July, 1932.
3. Toombs, P. W.: *Am. Jour. Obste. and Gynec.*, Vol. XI, No. 2, page 206, February, 1926.
4. Barnes, C. S.: *Am. Jour. Obste. and Gynec.*, Vol. XII, No. 5, page 734, November, 1926.
5. Melhado, G. C.: *Am. Jour. Obste. and Gynec.*, Vol. 26, No. 5, pages 698-704, November, 1933.
6. Danforth, W. C.: *Am. Jour. Obste. and Gynec.*, Vol. 23, No. 3, page 363, March, 1932.
7. Danforth, W. C.: *Am. Jour. Obste. and Gynec.*, Vol. 28, No. 5, pages 758-761, November, 1934.

#### DISCUSSION

DR. EDWARD F. BUCHNER (Chattanooga):  
Mr. President and Gentlemen: Dr. Lewis has brought us a very fine discussion of the manage-

ment of the occipitoposterior position, together with a detailed study of the results obtained in this locality. Every physician conducting deliveries will be especially interested in the presentation and study of these incidence, course, treatment, and mortality percentages. I strongly recommend that we do study these tables carefully.

Attention is drawn to the difficulties of diagnosis, both early and late, in labor even under favorable conditions. As accurate diagnosis is the first requisite of conservative treatment, we must come to realize the value of radiography and employ it whenever abdominal or vaginal palpation does not furnish satisfactory information. Hesitancy and delay in the use of a laboratory diagnostic aid, particularly one as simple, accurate and quick as the X-ray, may convert watchful waiting on the undiagnosed case into disastrous neglect.

When we consider the different mechanisms of labor involved, the diagnosis of an occipitoposterior position should automatically raise the differential diagnosis of that particular mechanism about to be used by the case at hand. Dr. Lewis has shown that more than eighteen per cent of these cases delivered either spontaneously or with mechanical aid with the occiput remaining posterior. This group two of Table III may be taken as one differential prognostic group in contrast to the other groups of Table III. The recent studies of Thoms and Caldwell in pelvimetry and the classification of pelvic types have opened new opportunities for the understanding of some of the causes of the occipitoposterior positions and the demonstration of the mechanisms of labor used in each type.

After accurate diagnosis with the prognosis of the mechanism expected, the two main factors of conservative management are patient observation and adequate analgesia. Dr. Lewis has discussed this in thorough detail. Any intervention will be relatively safer as it remains technically simpler regardless of the amount of the experience of the operator.

Manual rotation is, of course, safer than instrumental rotation, although in certain head and pelvic size relationships forceps delivery with the occiput posterior may well be safer than any attempts to rotate. Any consideration of this subject will show the individualization necessary for the proper management of each labor. Further differential diagnoses of the causes of the posterior position will probably restrict the indications for version and extraction more and more.

We are all indebted to Dr. Lewis for his advocacy of manual rotation and the report of his technique and results with manual rotation, as well as for his clear and thorough presentation of this whole subject. I assure you, Dr. Lewis, that I enjoyed your instructive essay very much.

DR. W. T. PRIDE (Memphis): This is such a pet subject of mine that I hardly know what

to say and where to begin. Dr. Lewis has given you a résumé of the subject which is worthy of any organization. His details are concise, and I think a study will show that they are pretty well accepted over the country. If Dr. Lewis were not such a good friend of mine I would not say what I am going to say now, but I am going to disagree with his figures, and I am disagreeing with the figures of everybody all over the country. The reason I disagree with him is because I am using a different method than previously used and generally used all over the country.

We have consistently now for the past three years at least taken X-rays of all primiparas. We take them anywhere from one to two weeks before the patient goes into labor. If we knew, of course, when she was going in, we would wait until she went into labor, but to be sure that we get the size, position, and so forth of the baby we take this on an average two weeks ahead of time. We follow the case. The diagnosis is made from a flat plate. As I told Thoms, using his gridiron, there are no figures, there is no multiplication, there is no expert mathematician to figure these things out, it is taken on a flat plate, and the diagnosis is made from the flat plate. This diagnosis is written on the chart, and the chart stays in the hospital with this on it. Then when the patient goes into labor she is watched and examined at the proper time, and we see if we confirm our X-ray diagnosis. We then carry this patient on to the termination of labor, and, after she gets on the table with full dilatation, we then examine her again. This is all written down, and not the same person writes it down, so if we were wrong in the first place with our diagnosis it would show up on the chart.

Much to my surprise, after we had taken 700 primiparas, private cases, consistently, practically all in one hospital, we found to our utter amazement that 70.6 per cent started posteriorly.

I have been teaching obstetrics for twenty-five years, and for about twenty-four years of that time I told my students that twenty-five per cent were posterior and seventy-five per cent anterior. You see what Dr. Lewis' figures are. It was not twenty-five per cent; it is only about thirteen per cent.

Now, what is the difference? By the time you can absolutely say that a case is anterior or posterior it has rotated. In a great many instances, that happens if you are not looking for it. So we are looking for it. We have this case before us, and we are looking for it constantly and consistently. I disagree with the figures all over the country, and I think we have proven what we say.

(Slide) That is the normal position as taken with one of our cases, an ROA. How do we diagnose this case? How do you tell it is an ORA or ORP or transverse? One of our well-known obstetricians from the East was in my office not long ago, and a picture of a posterior, a most beau-



tiful posterior, happened to be in the shadow box, and I turned it on. He looked at it and said, "Ah! Nice anterior." I did not argue with him, I said, "Yes." It was the most beautiful posterior you ever saw.

That is a beautiful anterior. Go by the ears more than anything else; that is the first thing you go by, and the second thing is the head. You see this backbone is far enough up here to see the curve of the ribs going back the other way.

This head is almost square here.

(Slide) That is a real transverse. Watch the head; it is just about like this.

(Slide) That is your occipitoposterior, and look where the ribs are now. You can hardly see them going back over here. The head is back in that position; in other words, instead of this being as it was a while ago up this way, it is down this way; it has changed and come down.

(Slide) This is a breech.

(Slide) There is a monster. Look how near a breech and a monster look alike in the X-ray. The first time we had a monster in the X-ray we called it a breech. We went over there expecting to find a breech, and when I felt I said, "This is the funniest breech I ever felt in my life," and there was a monster. We have never made that mistake since.

You will find, if you take X-rays consistently and follow these cases, 70.6 per cent will start out posterior and you let them go and they will come out just like Dr. Lewis has shown you, along about ten to eighteen per cent posterior and the balance anterior.

How can you shorten this? How can you shorten the labor if you know what it is? I have forgotten Dr. Lewis' figures, but his average labor was how much?

DR. LEWIS: Twenty-five hours for operative, fourteen for normal.

DR. PRIDE: We can shorten it in the posterior by a third at least if we know what we are dealing with, by the manipulations which Dr. Lewis has shown you, or by one that I use consistently, and that is the mid forceps, using them very much like Arthur Bills described sometime ago. It is a nice maneuver in which you can flop the case over—you apply the forceps in the posterior position, just as though it were anterior, it makes no difference.

DR. SAMUEL C. COWAN (Nashville): Mr. President and Gentlemen, I have thoroughly enjoyed Dr. Lewis' paper. I think for a meeting of this kind his paper is one of the most practical ones that I have ever heard read on this condition. He has shown us figures that we have here in Nashville which all of us here in Nashville know are correct so far as we are concerned.

I have not very much to say about Dr. Lewis' paper except to compliment him on it. The idea, though, of an X-ray for the diagnosis of posterior

position just does not seem necessary. To many members of this society it is not available.

We teach students. Our junior students can make a diagnosis of posterior position by the methods described by Dr. Lewis just as easily and much more easily than I could make a diagnosis from an X-ray plate.

I think that the length of the labor is one thing that one should always consider. There is something about a posterior position from the character of the pains that always directs your attention to a posterior position; the pains are irregular, they are weak, they are ineffective, and your patient does have to have considerable analgesia and rest during the period of dilatation. It is not a good idea to try to rotate a head before your cervix is completely dilated.

In the condition that Dr. Lewis describes, you can introduce your hand a little bit past the head and you can find that ring that grips the shoulders and holds and prevents rotation.

I just want to make this point so far as rotation is concerned, that if that is attempted the patient must be under surgical anesthesia in order to relax the uterine muscle.

There is another thing that Dr. Lewis brought out about the length of time after dilatation is complete that I think is a point that is well worth remembering, and that is this baby's head has been subjected to a good deal of moulding while passing through the cervix, and if you delay too long with the head on the perineum you are going to get some intracranial injury or pressure that you would not otherwise get if interference was done skillfully and easily.

Even after spontaneous rotation has taken place, these patients have not the strength, a great many of them, to finish delivery, and forceps in a great many instances are necessary for termination of the labor.

DR. MILTON SMITH LEWIS (closing): In regard to using X-ray for the diagnosis of the occipitoposterior position that Dr. Pride spoke of, I would like to ask how many of you have the facilities for making such a diagnosis? I am of the opinion that we should use the faculties that God gave us in making the majority of our diagnoses. X-ray is a very useful procedure in obstetrics, and I go a little further than Dr. Pride in that I make stereoscopic X-ray examinations every three hours in those patients that do not progress normally, but they are not on private patients where I have given them adequate prenatal care, but on charity cases that I have not followed in the prenatal clinic.

No one appreciates X-ray more than I do, but I am sure the majority of cases must be diagnosed clinically. An accurate diagnosis is possible from abdominal palpation alone, but always remember that the positions of the fetal heart and small parts, while corroborative, are conducive to an erroneous diagnosis if relied on to any great ex-

tent, and therefore should always be confirmed by vaginal examination. The course of labor is rather characteristic in the occipitoposterior position with the long first stage, slow dilatation, and ineffective pains, in contradistinction to an anterior position with its rapid progress in dilatation with good pains. Absence of such progress should at once put one on guard. Finally, in any vertex case in which the back is on the right side, an occipitoposterior should be suspected and treated as such until proved otherwise.

So just use good old common sense and usually you will not have any trouble.

The modified Scanzoni maneuver that Dr. Pride referred to demands only brief discussion. This maneuver has many advocates and many oppo-

nents; however, all agree as to the danger involved to the child and the mother, and almost all advocates of the method, as well as the opponents, emphasize the belief that the procedure is unsafe except in the hands of an expert.

It is our opinion that, for the physician who has only the average training in obstetrics, the best treatment of the posterior position is the conservative. This takes into consideration the realization that at least seventy to seventy-five per cent will rotate spontaneously. Then, when indicated, interference may be resorted to according to the demands of the individual case. For the physician who has considerable training and experience, we still believe the conservative treatment is the procedure of choice.



## INFLUENZA AND THE NERVOUS SYSTEM\*

S. T. RUCKER, M.D., Memphis

**I**NFLUENZA is always a subject of interest to physicians, and to know it in all of its forms and complications will give one a more comprehensive knowledge of medicine. Influenza is protean in its manifestations, and physicians in all departments of medicine are called on to treat it, or some of its complications and sequelæ. The history of influenza shows that great pandemics sweep the world at irregular intervals. It is frequently epidemic and is endemic in all seasons of the year. The pandemics of 1889-1891 and 1918-1920 were the most widespread and devastating that America has experienced. Few escaped from its violent sweep over the country. Victims died by the hundred, and thousands suffered from the effects of complications and sequelæ. Influenza is no respecter of persons. Both sexes and all ages have it, though it prefers to attack young adults. One attack does not give immunity. In fact, having it once makes one more susceptible to a subsequent attack. The three kinds of influenza commonly met with are respiratory, gastrointestinal, and nervous, though the nervous element is prominent in almost every attack.

The disease is highly infectious and spreads rapidly. It begins, as a rule, abruptly, with fever, headache, chilly sensations, profound prostration, and sometimes a sore throat and irritating cough. I can speak with some feeling on this subject, having had influenza in all its forms and each attack was followed by some disagreeable sequelæ.

Some of the complications and sequelæ of influenza are catarrhal conjunctivitis, iritis, rhinitis, laryngitis, permanent impairment of the vocal cords, otitis media, tinnitus, mastoiditis, bronchitis, pneumonia, endocarditis, myocarditis, thrombosis, kidney and bile duct infection, herpes, and intract-

able diarrhea. I was confined to my bed for two weeks with the last-named complication, during my first attack of influenza.

The influenza bacillus seems to have a special affinity for the cerebrospinal system, and nervous complications or sequelæ are frequent. In fact, almost every form of disease of the nervous system may follow influenza.

Graves, reporting a series of eight cases of postinfluenzal psychoses, says "of all the infectious diseases, influenza is the most likely to be followed by mental disorders." Elmer and Boylan, discussing the puzzling symptoms of postinfluenzal encephalitis, say "the sequelæ of influenza are both numerous and puzzling, and after fourteen years of clinical observation, cases encountered are sometimes baffling."

Neal, Jackson, and Appelbaum "report a study of one hundred and eleven cases of meningitis due to the influenza bacillus with four recoveries." Kamman "reports four cases of schizophrenic reaction following influenza." A large proportion of our nervous patients trace their trouble to an attack of influenza. An annoying neurosis often met with is postinfluenzal neurasthenia and the attendant symptoms of headache, insomnia, inertia, introspection, and an absolute good-for-nothing feeling that makes every effort painful.

*Treatment.* — There is little I can say about the treatment of influenza that physicians do not already know. My experience has taught me that the best way to treat influenza is before it begins. Give cod liver oil and food rich in vitamin A, preceding and during the season influenza is expected. This increases bodily resistance and preserves the physiologic integrity of epithelial membranes, thus maintaining the first line of defense against bacterial invasion. Be suspicious of every cold until it proves no connection with influenza.

When an acute attack of the disease begins, the patient should be put to bed, well fed, and carefully nursed. Antipyretics

\*Read before the Tennessee State Medical Association, Nashville, April 9, 10, 11, 1935.

should be used with caution, as profound prostration may occur after their employment. It is my plan to give thirty grains of bicarbonate of soda in a glass of water three times per day and the bowels opened by a calomel or saline purge. A three-grain capsule of quinine is directed three times a day. Mild hypnotics or Dover's powder given at night will promote rest and sleep. Little else need be done, and uncomplicated cases will subside in three or four days. If the temperature rises to 102 or above (Fahrenheit) I give five-grain tablets of acetylsalicylic acid or phenacetin every three hours until the temperature comes down. Complications and sequelæ should be treated promptly as they arise and according to the judgment of the physician or specialist who has the patient in charge.

#### REFERENCES

- Graves, T. C.: *Journal of Neurology and Psychopathology*. London, October, 1928.  
Elmer and Boylan: *Medical Journal and Record*. New York, February 1, 1933.  
Neal, Jackson, and Appelbaum: *Journal American Medical Association*. February 17, 1934.  
Kamman: *Journal American Medical Association*. April 26, 1930.  
Cecil's *Medicine*, Third Edition, 1934. W. B. Saunders, Philadelphia.

#### DISCUSSION

DR. JAMES L. BIBB (Chattanooga): Mr. President, I want to thank Dr. Rucker for his paper on this most important subject.

If one knows appendicitis and all of its many complications and how to deal with them, one knows abdominal surgery. Likewise, if one knows all of the manifold complications of influenza, he knows internal medicine.

We all have our pet schemes for treatment; the most important is adequate and prolonged rest in bed, and many of our complications are due to failure to get this across to the patient. I never purge them, feeling that a mild laxative is sufficient.

There is one nervous complication mentioned by the essayist I would like to emphasize. Schizophrenia is the most frequent psychotic picture caused by flu, occurring without predisposition or hereditary taint, and, contrary to the usual course in this disease, they eventually fully recover, though often taking months.

These patients are a source of grave concern to the family, both from the standpoint of expense and ultimate welfare of the individual. The question is, Should they continue the expense of a private sanatorium or must the patient be com-

mitted to a state hospital? The latter carries with it a certain social stigma which is unfortunate and unwarranted. Therefore, here, as in every other case, a careful medical history should be taken of all patients suffering from schizophrenia, and if there is any direct connection between mental symptoms and a recent attack of flu, do not give a diagnosis of ordinary dementia præcox. Dementia præcox carries with it such a hopeless prognosis, whereas most of these patients get entirely well.

With reference to the three types of flu mentioned by Dr. Rucker, let us be careful about making the all-too-frequent and somewhat unscientific diagnosis of intestinal flu. This is often a cloak for our ignorance, and if diligent search is made some other cause can be found for symptoms and signs presented.

Often all of us have had this occur to us. A patient comes in and tells us, "Doctor, I always knew I had some trouble with my heart. I had been getting along all right until I had flu about three or four months ago. Since then I have had shortness of breath, edema," and the old, old story, again emphasizing the important fact that infection as well as overexertion brings on congestive heart failure. Therefore, in our heart cases, with flu or with any upper respiratory infection, keep those patients in bed and under observation three to four times as long as your ordinary case of flu, remembering that infection as well as exertion is the cause of congestive heart failure.

DR. W. H. WITT (Nashville): The relation of influenza to well-defined pathological changes in the nervous system, as well as to more or less well-defined sequelæ of an influenzal attack, sequelæ which may with considerable reason be attributed to neurological changes, has been a matter for most serious consideration on the part of clinicians and pathologists ever since the pandemic of 1889 and '90. This study has been complicated by the forbidding difficulties encountered in the assignment of a definite organism as the cause of that disease. At one time the bacillus influenza was found with great regularity in the many lesions of this malady. In one of my own cases in a child with complicating abscesses, the organism was found in pure culture from two of the abscesses by Dr. William Litterer. That was some thirty years ago. In later pandemics, notably that of 1918, the organism has not been so constantly found.

Whatever the etiology and however varied the pathology and symptomatology in different epidemics, I feel it is right to hold to the essential identity of them all, reserving for future study the real meaning of the great variation in the clinical manifestations. That the disease attacks nerve tissue is generally accepted, so that we may have a meningitis, a cerebritis (encephalitis, if you prefer), a myelitis, a neuritis. Also, such attack may be on the upper or lower neuron, on



nuclear tissue or conducting tissue, or in many cases there is quite a diffuse process. These are axioms accepted of all clinicians.

Dr. Rucker has done well to call our attention to them. There is no surprise, then, if over a period of years in the various pandemics that we have gone through, one has seen a hemiplegia, a monoplegia, a meningitis, ocular or other cranial nerve palsies, a peripheral neuritis, or a group of symptoms suggesting encephalitis lethargica, or even a more diffuse involvement with coma and death. Mild or more severe psychoses are probably as frequent as organic diseases. In fact, they very probably depend on some slight change in the nervous tissue.

A knowledge that such a variety of pathological changes in the nervous system may occur, whether any specific organism is to be found or not, carries the suggestion to all physicians encountering cases of influenza that they be on their watch for symptoms suggesting a neurologic complication, and that they may occur when convalescence seems well established. If, then, unusual somnolence, headaches, ocular or other palsies, disturbances of respiration, or meningeal symptoms ensue, especial care is called for in diagnosis and in prognosis. It remains true, however, that in the great majority of epidemics the neurological complications are much less common and less serious than the pulmonary.

The selective action of organisms on body tissue

is one of the most interesting things in medicine, and considering the very great variety of pathological organisms to which man is subject, and the great variety of tissue attacked by those organisms, it is interesting to note how infrequently the parenchyma of the brain and the spinal cord is involved in acute infections. We might rule out, for our purposes, syphilis as being a rather late invasion, and abscess is more commonly due to direct extension from the infective focus or to a somewhat gross embolic process through the vascular system. Setting aside the rather rare conditions like botulism and tetanus, we may say that the organism of poliomyelitis, whatever it is, is the only one that constantly prefers the central nervous system, unless, of course, we agree to accept encephalitis lethargica as an entity not associated with any other etiological cause. In that sense we must regard the encephalitis that occurs in measles, in scarlet fever, in typhoid fever, and other exanthemata, and even influenza, as one of the rare manifestations of those very common diseases, but nonetheless we must be familiar with these manifestations and learn to recognize them when they occur.

Dr. Rucker has done the association a service in bringing this subject to our notice.

DR. S. T. RUCKER (closing): I have nothing to add except to thank Dr. Witt and Dr. Bibbs for their discussion of the paper.

# THE JOURNAL

OF THE

## TENNESSEE STATE MEDICAL ASSOCIATION

Devoted to the Interests of the Medical Profession of Tennessee  
Office of Publication, 510 Doctors Bldg., Nashville, Tenn.

*Acceptance for mailing at special rate of postage provided for  
in Section 1103, Act of October 3, 1917,  
authorized July 15, 1932.*

H. H. SHOULDERS, M.D., Editor and Secretary

DECEMBER, 1935

## EDITORIAL

DR. E. C. ELLETT

The Memphis Academy of Ophthalmology and Otolaryngology is sponsoring a clinic day in Memphis on December 10. In the evening there is to be a banquet.

The day has been designated "Ellett Day" in honor of Dr. E. C. Ellett.

This event in our opinion, deserves some special mention in the Christmas issue of the JOURNAL.

It is a fine thing that the profession of medicine in Tennessee has such a character in its membership. It is an appropriate thing that his associates and confreres in his specialty—all should feel inclined to do him such an honor. This action on their part was not prompted by any unusual event in the life of Dr. Ellett occurring at the moment. It is a more beautiful thing than that. It is inspired by the professional character of the man as exemplified in his living and working day by day. It is inspired by the manner in which he has lived up to the tenets of our profession. There is a deep genuineness in this expression of regard and esteem.

Dr. Ellett is to be congratulated upon this achievement.

### A HIGH SCHOOL DEBATE QUESTION

The high schools of the United States are conducting debates on the subject "Resolved: That the several states should enact legislation providing for a system of complete medical service available to all citizens at public expense."

The debaters of course are supplied with abundant information by the theorists who

have sponsored the positive side of the question in this country.

In our opinion this movement contains dangerous possibilities, for several reasons: First, much of the so-called information in support of the positive side of the question is nothing short of propaganda. Most of it has been prepared by propagandists.

The high-sounding phrases are calculated to make an appeal to the youthful mind. The subject of the debate should be "Resolved, That Communism should be substituted for Democracy in America." Such a statement is more accurate, because state medicine as portrayed in the question to be debated is communism in so far as medicine is concerned.

This movement shows the cleverness with which the communists are carrying out the advice given by Mr. Lenin himself. His advice was to the effect that communism should be brought about by degrees. That is, one portion of our necessities or one branch of activity should be communized, then another, and then another, until the whole of living has been brought under communism.

A question these high school students should ask themselves and their parents in this connection is: "Do I prefer liberty in which my energies and efforts will be regarded on merit or a communism in which my energies and efforts are to be dissipated for the alleged benefits of all, including those who make slight effort and exert little energy?"

Another matter of importance, while not apparent on the surface, is the ultimate political effects of such a move. We doctors know that when the governmental machinery necessary for the administration of any system of state medicine has been set up, its political power, when linked up with other political units of government, will be overwhelming. Then governmental employees can outvote those not employed by the government. They can use the power to tax, and all other governmental powers as they may choose. Our liberties, then, are destroyed regardless of the form of government under which we live. The force of political power will dominate in the congress, legislators, executives and the courts.



So the question involved in this debate is far bigger than the one isolated question of medical services.

We must learn that political experimentation in a large way cannot be compared with laboratory experimentation in the field of science. In the latter, if the experiment fails or even if an explosion occurs, all that is gone is a little laboratory equipment and maybe an injured experimenter. Experiments in the field of government, which fail, or which blow up, so to speak, affect the whole of humanity and possibly unborn generations. It may destroy the very things which make life worth living—the things which give flavor to living—the thing which inspired our forefathers to subscribe with their blood to the phrase—"Give me liberty or give me death." Who would crave longevity with liberty gone?

The debate of "State Medicine" vs. "Democracy in Medicine" involves the question of liberty itself—nothing less. This fact cannot be emphasized too strongly.

---

#### THE MEDICAL EDUCATION OF LAY PEOPLE

The medical profession is criticized oftentimes by people with a certain amount of academic education for their failure to carry on a continuous program of education of lay people on medical subjects.

Most of this criticism is unwarranted. The criticism, in many instances, is born of the idea that the acquisition of knowledge is an end within itself. Unfortunately this is too often true.

There is an old philosophy to the effect that it is necessary to "acquire wisdom as well as knowledge."

The dissemination of a certain amount of medical knowledge among lay people, without the wisdom to use it properly, might be a very dangerous thing.

There is an old adage to the effect that "a little knowledge is a dangerous thing." We doctors know it to be true. The medical education and training required of practitioners today would be a foolish waste of time and money if it were not true.

There is much knowledge which is not essentially medical in character but which

achieves ends which may be medical in character. The knowledge relates to cleanliness. When all is said and done cleanliness embraces all there is to both hygiene and sanitation.

Hygiene is that cleanliness which relates to the person. Sanitation relates to the cleanliness of surroundings. These subjects have been hammered at for years. However, most of those who offer criticisms are really seeking information concerning certain diseases. Most of the medical information which lay people can use to the slightest advantage has already become common knowledge or, at least, is easily available to them.

In our opinion, for a layman to know that an inoculation for the prevention of diphtheria is safe, that it is relatively certain in its effects is all the knowledge that really matters to him on this subject. The complicated biologic processes by which an agent produces an immunity is not a practical subject, nor is the technique of administering the *agent* of any practical usefulness to him. The time and energy used in teaching such subjects would accomplish nothing, though it might be interesting.

We have often suggested that a placard could be made on some permanent substance, like tin, and placed on every public building, on every courthouse, on every schoolhouse, on every church house and on the roadside throughout the state which would constitute an adequate education to the public on the subject of immunization. The legend on the placard might well consist of the following statements: Vaccination against smallpox is safe, simple, and certain. Vaccination against typhoid is safe, simple, fairly certain. Vaccination against diphtheria is safe, simple, and relatively certain. These treatments will prevent these diseases in a vast majority of instances. These statements are subscribed to by the medical profession, all boards of health, the governor of the state, the supreme court and every other public figure.

The people who sell Wine of Cardui in large quantities don't even tell the people what it contains.

People are educated daily by the medical profession. They are given that education

which fits their individual needs. There is an old truism to this effect: "All the knowledge we get in life that is really worth while is knowledge we can use. All the rest hangs like dust about the brain or goes like raindrops from the stones."

We doctors continuously give our patients the knowledge they can use both in preventing and in curing diseases.

We doctors are not opposed to lay education on medical subjects. However, we recognize the utter futility of most of it and the possible dangers in much of it. People with a limited knowledge are prone to put that little knowledge into practice with tragic results.

Medical knowledge is not something which can be used according to a rule of the thumb. It must be used with judgment and wisdom to be safe and effective.

## DEATHS

Dr. John P. Grisard, Winchester; University of Tennessee, College of Medicine, Memphis, 1901; aged 57; died, November 26, after an illness of several weeks.

## WOMAN'S AUXILIARY

President-----Mrs. R. G. Reaves  
Knoxville

President-Elect-----Mrs. Theodore Morford  
Nashville

Press and Publicity-----Mrs. W. O. Floyd  
Nashville

Greetings to all our auxiliary members at Christmastide!

Again we draw near to the holiday season and find ourselves very busy with preparation for the exchange of gifts and other appropriate celebration. An atmosphere of gaiety has already surrounded us and we listen once more with gladness to the chimes and carols which tell us of the coming of the Christ child.

In the midst of our joy, let us remember with gratitude our own great debt to God, the Father, and be moved to give in turn to those less fortunate than ourselves. May we have our finer purposes renewed—each

for herself and as an organization—that we may serve more loyally in the New Year just ahead.

### MESSAGE

*Dear Auxiliary Members:*

Our Press and Publicity Chairman, Mrs. W. O. Floyd, has given me the opportunity to address you through the JOURNAL; and, as your State Historian, and one deeply interested in the auxiliary, its purposes and plans, I am grateful for this opportunity.

Of unread histories this world is surfeited, and of history that repeats itself, and historians that repeat each other; but, the beginning of any undertaking is infinitely important. In a world of almost universal change, we are awakening to the value and necessity of noting facts of present-day events.

Year by year the work of our auxiliary is spreading into wider fields. I believe that with the splendid purposes and leadership of the auxiliary properly recorded, there will be a history of honorable achievement and one of much interest to those who shall come after us. There's work for the auxiliary to do; there's a reason for its existence. The proper recording of facts of any organization is perhaps more important to an organized body than the selection of a leader, for records are pictures of printed words and phrases which last throughout time, while leaders, however much their leadership may be revered, "pass like ships in the night."

May I urge you as members of your county auxiliary, whose membership comprises women of culture and leadership, to record the work of your local auxiliary. Since each county has its individual problems and needs, how very essential that all the work be recorded of its ideals as well as method of developing them.

We owe a debt of gratitude to the splendid historians who have kept the pages of our state's history together these years. And, as we read the records of each year, we realize their interest and painstaking effort in perfecting this history of the formative period of our auxiliary.

Again may I appeal to the county presidents to have the historians send to me any



data they may have to be recorded in our state's history. If you have no history of your local auxiliary, won't you let this immediately become part of your work?

It is most important that small as well as large organizations make a permanent record of their formative period as well as the period of endeavor and achievement. Those of us who have read the Centennial History of the Tennessee State Medical Society find it as fascinating as a novel. If you have not a copy in your library, get one. You will find it interesting reading. This history may be procured at the sum of \$3.00, and incidentally, your treasurer will receive a commission of \$1.00 for each copy sold by our auxiliary.

Many of you will recall that under the leadership of one of our early presidents the data for Tennessee's history in the Romance of Doctors, a project sponsored by the Southern Medical Auxiliary, was compiled, and though we did not reach the heights toward which we turned in this effort, and the compilation was never published, our data is complete and on file, and some day perhaps the artist will seize his brush and paint.

MRS. B. F. BYRD, *Historian*.

## MEDICAL SOCIETIES

### *Davidson County:*

November 19—"Film Demonstration of Unusual Cases," by Dr. H. S. Shoulders. Discussion opened by Dr. Leon Lanier.

November 26—"Abnormal Blood Pigments of Clinical Importance," by Dr. Albert Weinstein. Discussion opened by Dr. Hugh Morgan.

December 3—"Allergy in General Practice," by Dr. C. S. Thomas. Discussion opened by Dr. John Youmans and Dr. Edna Pennington.

December 11—Election of officers.

### *Dyer, Lake, and Crockett Counties:*

Members of the society and doctors who appeared on the program during 1935 were royally entertained by the Baird-Brewer General Hospital with a banquet in the hospital dining room.

After the banquet the society was called in regular session. The following officers were elected for 1936:

President—Dr. R. C. Newkirk, Tiptonville.  
Secretary and Treasurer—Dr. C. L. Denton, Dyersburg.

Vice-President from Dyer County — Dr. John Frazier, Newbern.

Vice-President from Lake County—Dr. R. W. Griffin, Tiptonville.

Board of Censors—Dr. R. W. Griffin, Tiptonville, and Dr. N. S. Walker, Dyersburg.

Representative and Alternate to State Society—Dyer County—Dr. J. D. Brewer, Dyersburg, and Dr. J. G. Price, Dyersburg. Lake County—Dr. W. S. Alexander, Ridgely, and Dr. W. L. Sumners, Ridgely.

No nominations from Crockett County.

Scientific Program:

1. Pelvic Injuries — Dr. J. P. Baird, Dyersburg.

2. Anemias—Dr. J. W. McElroy, Memphis.

Forty-five present.

—C. L. DENTON, *Secretary*.

*Hardin, Lawrence, Lewis, Perry, and Wayne Counties:*

A meeting of the society was held in Savannah on November 26. Twenty physicians and dentists were present.

The following papers were read: "Whooping Cough and Its Treatment," by Dr. D. L. Woods, Waynesboro. Discussion opened by Dr. T. J. Stockard, Lawrenceburg.

"The Non-Surgical Treatment of Hemorrhoids," by Dr. B. F. Hardin, Memphis. Discussion opened by Dr. W. E. Boyce, Flatwoods.

Several Memphis physicians were present and entered into the discussion of both papers.

The annual election of officers was held.

To stimulate more interest and for the convenience of all members, it was voted to meet each month in Waynesboro—this being the most centrally located town in the five-county area.

### *Knox County:*

November 12—"Hemolytic Jaundice with Case Report," by Dr. W. R. Cross. Discussion opened by Dr. Joe T. Smith.

November 19 — "Treating Pulmonary Conditions with Pneumothorax," by Dr. Rufus Smith. Drs. Carmichael, Long, and R. B. Wood led the discussion.

November 26—Dr. Jesse C. Hill's subject was "A Psychosis of Especial Interest to the General Practitioner." Drs. Zemp, Long, R. B. Wood, and Carmichael led the discussion.

December 3—Dr. E. R. Zemp spoke on "Conquest of Diseases. A Retrospective Review." Dr. S. R. Miller opened the discussion.

#### *Madison County:*

On December 3, Dr. J. C. Pearce of Mercer was elected president for 1936. Dr. J. E. Powers was elected vice-president and Dr. S. M. Herron was re-elected secretary.

Dr. G. H. Berryhill read a paper on "Focal Infections." The paper was discussed by Drs. Webb, Parker, Crook, Hawkins, Herron, Douglass and others.

Drs. Brandon and Johnson of Lexington were visitors.

#### *Roane County:*

The Roane County Medical Society met in Harriman November 21. Members attending were Drs. Roberts, Zirkle, and Fly of Kingston; Dr. Regester of Rockwood, and Drs. Neergaard, Bowman, Killeffer, and Hill, of Harriman.

Dr. F. D. Owings of Rockwood made application and was elected to membership of the society.

Dr. R. F. Regester read an interesting paper on "Headaches" which was discussed by all present. Dr. Roberts and Dr. Zirkle each reported interesting cases.

#### *Washington County:*

The society met on December 3. The following papers were read: "Neuroses and Psychoneuroses," by Dr. W. M. Bevis. Discussion opened by Drs. Brading and Creech.

"Rice Formation in the Joints," by Dr. H. B. Cupp. Discussion opened by Drs. Parker and West.

#### *Hamilton County:*

The last scheduled meeting of the year will be held on December 19. Drs. J. C. Brooks and D. N. Williams will conduct a symposium on obstetrics.

## STANDING COMMITTEES

### COMMITTEE ON SCIENTIFIC WORK

H. H. Shoulders, Chairman, Nashville  
A. F. Cooper, Memphis  
W. J. Sheridan, Chattanooga  
Jesse C. Hill, Knoxville

### COMMITTEE ON PUBLIC POLICY AND LEGISLATION

Battle Malone, Memphis (five years)  
L. W. Edwards, Chairman, Nashville (four years)  
Tom Barry, Knoxville (three years)  
T. R. Ray, Shelbyville (two years)  
Robert Sullivan, Nashville (one year)

### COMMITTEE ON EDUCATION

O. S. Warr, Chairman, Memphis (three years)  
R. B. Wood, Knoxville (three years)  
W. G. Kennon, Nashville (two years)  
J. Marsh Frere, Chattanooga (two years)  
W. O. Baird, Henderson (one year)  
J. M. Lee, Nashville (one year)

### LIAISON COMMITTEE

Hiram A. Laws, Chattanooga (four years)  
Tom Mitchell, Memphis (three years)  
J. L. Raulston, Knoxville (two years)  
W. C. Dixon, Chairman, Nashville (one year)  
W. P. Wood, Knoxville (five years)

### STATE TUBERCULOSIS HOSPITAL COMMISSION

W. S. Rude, Chairman, Ridgetop  
O. N. Bryan, Nashville  
C. M. Oberschmidt, Memphis  
J. L. Hamilton, Chattanooga

### HOSPITAL COMMITTEE

D. R. Pickens, Chairman, Nashville  
E. H. Baird, Dyersburg  
B. L. Jacobs, Chattanooga  
Kyle Copenhaver, Knoxville  
J. A. McIntosh, Memphis  
Lee Gibson, Johnson City

### ADVISORY COMMITTEE TO THE WOMAN'S AUXILIARY

Oliver W. Hill, Knoxville  
Matt Murfree, Murfreesboro  
W. W. Campbell, Memphis



## LIST OF OFFICERS OF THE TENNESSEE STATE MEDICAL ASSOCIATION

President—Dr. John B. Steele, Chattanooga.  
 Vice President for East Tennessee—Dr. C. R. Thomas, Chattanooga.  
 Vice President for Middle Tennessee—Dr. J. W. Wilkes, Columbia.  
 Vice President for West Tennessee—Dr. N. S. Walker, Dyersburg.  
 Secretary—Editor—Dr. H. H. Shoulders.  
 Assistant Secretary—Editor—Dr. W. M. Hardy.

## TRUSTEES

Chairman and Treasurer—Dr. C. M. Hamilton, Doctors Building, Nashville.  
 Dr. Franklin B. Bogart, Medical Arts Building, Chattanooga.  
 Dr. W. L. Williamson, 915 Madison Avenue, Memphis.  
 Dr. J. O. Manier, Doctors Building, Nashville.  
 Dr. E. R. Zemp, Walnut Street, Knoxville.

## COUNCILORS

First District—Dr. L. E. Dyer, Greeneville.  
 Second District—Dr. S. R. Miller, Knoxville.

Third District—Dr. J. H. Revington, Chattanooga.  
 Fourth District—Dr. J. T. Moore, Algood.  
 Fifth District—Dr. John W. Sutton, Petersburg.  
 Sixth District—Dr. L. W. Edwards, Nashville.  
 Seventh District—Dr. C. D. Walton, Mt. Pleasant.  
 Eighth District—Dr. J. R. Thompson, Jackson.  
 Ninth District—Dr. E. H. Baird, Dyersburg.  
 Tenth District—Dr. W. B. Burns, Memphis.

Speaker of the House of Delegates—Dr. E. R. Zemp, Knoxville.

## Delegates to the American Medical Association—

Dr. E. G. Wood, Knoxville; East Tennessee.  
 Dr. H. H. Shoulders, Nashville; Middle Tennessee.  
 Dr. H. B. Everett, Memphis; West Tennessee.

## Alternates—

Dr. E. T. Newell, Chattanooga; East Tennessee.  
 Dr. J. O. Manier, Nashville; Middle Tennessee.  
 Dr. E. C. Ellett, Memphis; West Tennessee.

## OFFICERS OF COUNTY MEDICAL SOCIETIES FOR THE YEAR 1935

| COUNTY                                    | PRESIDENT                             | VICE PRESIDENT                         | SECRETARY-TREASURER              |
|-------------------------------------------|---------------------------------------|----------------------------------------|----------------------------------|
| Anderson                                  | Thomas Jennings, Clinton              | Edward Dickson, Coal Creek             | J. S. Hall, Clinton              |
| Bedford                                   | W. T. Sharpe, Farmington              | Alfred Farrar, Shelbyville             | W. H. Avery, Shelbyville         |
| Blount                                    | C. C. Vinsant, Maryville              | L. C. Olin, Maryville                  | H. A. Calloway, Maryville        |
| Bradley                                   | Vance H. Bell, Cleveland              | D. N. Arnold, Cleveland                | Wm. A. Garrett, Cleveland        |
| Campbell                                  | A. L. Lawson, Elk Valley              | G. M. Rogers, LaFollette               | F. J. Slemmons, Jellico          |
| Carroll                                   | E. W. Hillsman                        | S. W. Huffman                          | J. H. Williams                   |
| Carter                                    | E. T. Pearson, Elizabethton           | J. B. Shoun, Elizabethton              | E. L. Caudell, Elizabethton      |
| Chester, Henderson, and Decatur           | C. H. Johnson, Lexington              | J. L. McMillen, Decaturville           | L. C. Smith, Henderson           |
| Cocke                                     | J. A. P. Shields, Hartford            |                                        | J. E. Hampton, Newport           |
| Cumberland                                | E. W. Mitchell, Crossville            |                                        | V. L. Lewis, Crossville          |
| Davidson                                  | W. G. Kennon, Nashville               | H. S. Shoulders, Nashville             | J. P. Gilbert, Nashville         |
| Dickson                                   | L. F. Loggins, Charlotte              |                                        | R. P. Beasley, Dickson           |
| Dyer, Lake, and Crockett                  | E. H. Baird, Dyersburg                | P. E. Miller, Tigrett (Dyer)           | C. L. Denton, Dyersburg          |
| Fayette and Hardeman                      | John Morris, Somerville               | R. C. Newkirk, Tiptonville (Lake)      |                                  |
| Fentress                                  | C. A. Collins, Wilder                 | J. O. McKinney, Friendship (Crockett)  | A. Richards, Bolivar             |
| Franklin                                  | W. F. Smith, Decherd                  | L. D. McAuley, Oakland                 | J. P. Sloan, Jamestown           |
| Gibson                                    | P. D. Jones, Milan                    | A. H. Crouch, Forbus                   | John P. Grisard, Winchester      |
| Giles                                     | Joe B. Wright, Lynnville              | A. P. Smith, Winchester                | F. L. Roberts, Trenton           |
| Greene                                    | L. E. Dyer, Greeneville               | L. H. Montgomery, Trenton              | T. F. Booth, Pulaski             |
| Grundy                                    | D. H. Bryan, Monteagle                | R. E. Warren, Pulaski                  | C. P. Fox, Jr., Greeneville      |
| Hamblen                                   | P. L. Henderson, Morristown           | M. A. Blanton, Mosheim                 | T. F. Taylor, Monteagle          |
| Hamilton                                  | James L. Bibb, Chattanooga            | O. H. Clements, Palmer                 | J. F. Campbell, Morristown       |
| Hardin, Lawrence, Lewis, Perry, and Wayne | G. N. Springer, Hohenwald             | P. L. Brock, Morristown                | W. J. Sheridan, Chattanooga      |
|                                           |                                       | D. N. Williams, Chattanooga            |                                  |
|                                           |                                       | V. H. Crowder, Lawrenceburg (Lawrence) | C. C. Stockard, Lawrenceburg     |
|                                           |                                       | Paul Wylie, Hohenwald (Lewis)          |                                  |
|                                           |                                       | W. E. Turner, Lobelville (Perry)       |                                  |
|                                           |                                       | J. T. Keeton, Clifton (Wayne)          |                                  |
|                                           |                                       | Otis W. Whitlow, Savannah (Hardin)     |                                  |
| Haywood                                   | W. D. Poston, Brownsville             | A. H. Sorrelle, Brownsville            | Roy M. Lanier, Brownsville       |
| Henry                                     | A. F. Paschall, Puryear               | Elroy Scruggs, Paris                   | R. Graham Fish, Paris            |
| Hickman                                   | L. F. Pritchard, Only                 |                                        | W. K. Edwards, Centerville       |
| Humphreys                                 |                                       |                                        | W. W. Slayden, Waverly           |
| Jackson                                   | J. D. Quarles, Whitleyville           | R. C. Gaw, Gainesboro                  | F. B. Clark, Gainesboro          |
| Knox                                      | Eugene Abercrombie, Knoxville         | W. F. Christenberry, Knoxville         | Jesse C. Hill, Knoxville         |
| Lauderdale                                | J. L. Dunnivant, Ripley               | T. E. Miller, Ripley                   | J. R. Lewis, Ripley              |
| Lincoln                                   | J. D. Bryant, Fayetteville            | H. Knox Alexander, Fayetteville        | J. M. McWilliams, Fayetteville   |
| Macon                                     | D. D. Howser, Lafayette               | P. East, Lafayette                     | J. Y. Freeman, Lafayette         |
| Madison                                   | F. C. James, Gadsden                  | H. E. Whitlock, Bemis                  | S. M. Herron, Jackson            |
| Mauzy                                     | E. M. Ragsdale, Columbia              | D. B. Andrews, Columbia                | C. D. Walton, Mt. Pleasant       |
| McMinn                                    | R. W. Epperson, Athens                | S. B. McClary, Sr., Etowah             | L. A. Brendle, Englewood         |
| McNairy                                   | John R. Smith, Selmer                 | G. B. Curry, Selmer                    | H. C. Sanders, Selmer            |
| Monroe                                    | T. M. Roberts, Sweetwater             | J. A. Hardin, Sweetwater               | W. J. Cameron, Sweetwater        |
| Montgomery                                | M. L. Hughes, Clarksville             | F. J. Malone, Clarksville              | Paul E. Wilson, Clarksville      |
| Obion                                     | W. B. Harrison, Union City            | Ilar Glover, Union City                | Frank B. Kimzey, Union City      |
| Overton                                   |                                       |                                        | A. B. Qualls, Livingston         |
| Polk                                      | H. P. Hyde, Copperhill                | W. Y. Gilliam, Copperhill              | F. O. Geisler, Isabella          |
| Putnam                                    | Z. L. Shipley, Cookeville             | J. Fred Terry, Cookeville              | Thurman Shipley, Cookeville      |
| Roane                                     | L. A. Killefer, Harriman              | R. F. Register, Rockwood               | W. W. Hill, Harriman             |
| Robertson                                 | W. Foster Fyke, Springfield           |                                        | W. S. Rude, Ridgeway             |
| Rutherford                                | J. D. Hall, Readyville                | B. W. Rawlins, Murfreesboro            | J. A. Scott, Murfreesboro        |
| Scott                                     |                                       |                                        | D. M. Woodward, Winona           |
| Sevier                                    | O. H. Yarberry, Sevierville           | R. J. Ingle, Sevierville               | C. P. Wilson, Sevierville        |
| Shelby                                    | Jas. B. Stanford, Memphis             | R. G. Henderson, Memphis               | A. F. Cooper, Memphis, Secretary |
|                                           | R. F. Mason, Memphis, President-Elect |                                        | J. J. Hobson, Memphis, Treasurer |
| Smith                                     | R. E. Key, Monroville                 | Rhea E. Garrett, Dixon Springs         | Thayer S. Wilson, Gordonsville   |
| Sullivan and Johnson                      | W. R. Rogers, Bristol, Va.            | L. C. Cox, Kingsport (Sullivan)        | Arthur Hooks, Bristol, Tenn.     |
|                                           |                                       | J. C. Hutchenson, Crandall (Johnson)   |                                  |
| Sumner                                    | J. J. Gwin, Hartsville                | R. N. Buchanan, Hendersonville         | Homer Reese, Gallatin            |
| Tipton                                    | A. J. Butler, Covington               | J. J. Fleming, Atoka                   | H. C. Currie, Covington          |
| Warren                                    | E. L. Mooneyham, Rock Island          | Jas. Boles, McMinnville                | John S. Harris, McMinnville      |
| Washington                                | J. W. Wallace, Johnson City           | E. T. Brading, Johnson City            | Carroll H. Long, Johnson City    |
| Weakley                                   | R. W. Brandon, Martin                 | H. G. Edmonson, Martin                 | P. W. Wilson, Dresden            |
| White                                     | S. E. Gaines, Sparta                  | Vernon Hutton, Ravenscroft             | A. F. Richards, Sparta           |
| Williamson                                | T. C. Rice, Franklin                  | R. H. Hutchison, Franklin              | K. S. Howlett, Sr., Franklin     |
| Wilson                                    | J. L. Ames, Lebanon                   | C. C. Young, Alexandria                | S. B. McFarland, Lebanon         |

## OTHER MEDICAL SOCIETIES

The Black Patch Medical Society met in Clarksville on November 20. There were thirty physicians present, representing Paris, Erin, Cumberland City, Trenton, Springfield, Neptune, Hopkinsville, and Clarksville.

Dr. George Boone, Jr., of Paris, presented a paper on "Collapse Therapy in Pulmonary Tuberculosis."

The next meeting will be held in Springfield in January.

At the meeting of the Middle Tennessee Medical Association held in Lewisburg on November 14 and 15, the following officers were elected: President, Dr. Joe B. Wright, Lynnville; Vice-President, Dr. J. C. Pennington, Nashville; Secretary-Treasurer, Dr. Daugh W. Smith, Nashville.

The next meeting will be held at Woodbury.

### VANDERBILT UNIVERSITY MEDICAL SOCIETY November 1, 1935

#### 1. Case Report:

"A Case of Paroxysmal Hemoglobinuria"  
—Dr. William Fleming.

The history, physical findings and course in the hospital during two admissions of a patient with paroxysmal hemoglobinuria were presented. A brief account of the etiology, mechanism, manifestations, and procedures necessary for the diagnosis of this condition was given together with a demonstration of the Donath-Landsteiner test on the patient.

Case discussed by Dr. Morgan.

#### 2. "A Research Program in Rural Mental Health"—Dr. Frank H. Luton.

A small program of research in rural mental health is being sponsored by the International Health Division of the Rockefeller Foundation. The project is a part of the activities of the Tennessee State Health Department in conjunction with the Department of Preventive Medicine, Pediatrics and Psychiatry of the Vanderbilt University School of Medicine. Williamson

County has been selected as the first point of attack and it is proposed to study as completely as possible for the first two or three years the existing mental health problems, and from the information thus obtained a demonstration will be proposed which will attempt to utilize already existing county health mechanisms. The staff is almost complete and work has been in progress since September first.

Paper discussed by Dr. Roth.

#### 3. "Remarks on the Theory and Practice of Vaccination Against Poliomyelitis"

—Dr. Ernest W. Goodpasture.

The etiology, pathogenesis and immunity of poliomyelitis were discussed. The two vaccines now in use to determine their effectiveness in the prevention of poliomyelitis, were described. Kolmer's vaccine contains active virus and there have been eleven or twelve cases of poliomyelitis developing shortly after its use. Protocols from four of these cases which were available show that the paralysis developed first in the arm which received the vaccine, and there was a mortality of seventy-five per cent. Both these facts as well as the time interval indicate that the vaccine was at fault. Brodie's vaccine does not contain demonstrably active virus and no case of poliomyelitis can be definitely attributed to its use. There are some indications that it is protective, but the results are not yet conclusive. Poliomyelitic vaccine should be administered only under controlled conditions, until more certain evidence of its harmlessness and protective power has been demonstrated.

Paper discussed by Dr. Morgan.

## ABSTRACTS OF CURRENT LITERATURE

### ANESTHESIA

By HUGH BARR, M.D.  
Medical Arts Building, Nashville

Denarcotization or Resuscitation of Anesthetized Patients. Paul M. Wood. Current Researches in Anesthesia and Analgesia. September-October, 1935.

Denarcotization is possible in most cases after basal, general or mixed anesthetics. It does not appear to be due to chemical neutralization, but



by increased metabolism, whereby various agents are more rapidly disintegrated and eliminated. In a long series of cases it was shown that denarcotization reduces the length of narcosis compared with controls.

The most effective and easily administered agent was coramin. Metrazol appears to be efficient. Carbogen is very efficient but requires a special apparatus to administer. Artificial respiration is too laborious.

Patients who were denarcotized usually spent a little less time in the hospital.

In eighteen instances of severe collapse, coramin was of great benefit and appeared to be lifesaving.

The author recommends in cases demanding resuscitation an open airway, carbon dioxide and oxygen with injections of coramin.

### DERMATOLOGY

By E. E. BROWN, M.D.

Doctors Building, Nashville

Lipstick Dermatitis. Harry Leonard Baer, M.D., Pittsburgh, Pennsylvania. *Archives of Dermatology and Syphilology*. November, 1935.

Dr. Baer reports a case of dermatitis of the lips produced by the use of lipstick. Tests were made by rubbing the lipstick on the forearms. His next step was to find the offending substance, since the ingredients were many. A basic formula is given. Tests were made with the base, perfume and base, dye and base, and dye and perfume alone. The patient responded to perfume and base. Next, he tested patient with the components commonly used in synthetic perfumes. Here he found methyl heptene carbonate to react positively on fifty per cent of thirty-eight controls as well as the patient.

### OPHTHALMOLOGY

By ROBERT J. WARNER, M.D.

Doctors Building, Nashville

Surgery of Pannus. B. Melik-Musian. *American Journal of Ophthalmology*. October, 1933.

The author's operation consists in introducing a continuous overcast catgut suture two or three mm. from the limbus, raising a roll of conjunctiva. During the first postoperative days this roll of conjunctiva is swollen and congested and causes an increase in the subjective symptoms. Seven to eight days later the cornea begins to clear, the catgut absorbs, leaving a round cicatrix, and vision improves. The operation gave very satisfactory results in thirty-five cases.

Discussion on Squint. M. S. Mayou. *American Journal of Ophthalmology*. October, 1933.

The author reports the results of operation in 700 cases of the rarer forms of squint. Under

local anesthesia he controls the result during operation by the Maddox rod test with a light set in the ceiling of the operating room over the head of the operating table. With tenotomy a correction of not more than fifteen degrees is obtained in the adult and twenty degrees in children. In an advancement the author usually tenotomizes the opposing muscle, at least temporarily, so as to prevent traction on the sutures. Tenotomy of the superior rectus usually corrects about ten to twelve degrees of hyperphoria. Various congenital and symptomatic defects are discussed.

### SURGERY—GENERAL AND ABDOMINAL

By BATTLE MALONE, II, M.D.

1400 Monroe Avenue, Memphis

The Hypertonic Wet Dressing. Frederic W. Taylor, M.D., Indianapolis, Indiana. *Surgery, Gynecology and Obstetrics*. November, 1935.

The author reviews the accepted theory of the therapeutic value of the wet dressing which holds to the belief that only water diffuses out into the hypertonic dressing and salt passes back into the cells of the tissues. There is slight but constant diffusion of the protein outward.

In the experiments with different solutions rabbits were used. The solutions tested included sodium chloride .85, 2.5, 5, 10, and 20 per cent; magnesium sulphate 16, 32, and 64 per cent; glucose 20 to 50 per cent. A mixture of half glycerine and half alcohol was also used. Most of the experiments were done on fresh wounds having the abdominal muscle layer for a base with a thin sheet of muscular fascia left over the muscle to allow for free osmosis between the capillaries of the muscle bed and the solution to be tested.

The abdomens of the etherized rabbits were shaved and a portion of the skin and subcutaneous fat removed together with most of the fascia covering the muscle. Dimensions of the wound were taken and its area calculated. A portion of a rubber glove containing 5 cc. of the hypertonic solution was cemented to the surrounding skin margins. At varying time periods the fluid was drained from the glove and measured. If there was oozing of blood into the solution, this was discarded and the process repeated. The fluid was analyzed for the amount of salt present and the percentage of salt calculated. Where wet gauze dressings were applied to the wound, these were removed at various time periods and the different layers tested for their salt concentration.

It was found that all the hypertonic solutions caused approximately the same amount of fluid diffusion from the wound. This amount was 1.2 to 1.5 cc. per hour for the square inch of wound surface. Fluid continued to pour out into the rubber container until it reached a hypertonicity of approximately one and one-half and at this

point the fluid started to reabsorb. The fact that the same amount of water is withdrawn from a wound, regardless of the hypertonicity or the agent, is explained as follows: The fluid comes from the capillaries by osmosis. The water diffusing outward depends upon the volume of blood brought to the wound. Hence it is concluded that the amount of fluid removed depends on the vascularity of that wound.

It was found also that the salt diffuses into the wound fairly rapidly. Thus 5 cc. of a ten per cent sodium chloride solution in contact with a square inch of wound surface becomes 6.5 cc. of a 4.2 per cent solution at the end of an hour. The diffusion loss with magnesium sulphate was less than with sodium chloride.

When extremely hypertonic solutions were used, such as sixty-four per cent magnesium sulphate, twenty per cent sodium chloride and fifty per cent glucose, there was only a slightly greater amount of water withdrawn from the wound and destructive effects on the tissues were evident from microscopic sections.

The amount of protein diffusing into the hypertonic solution was quite constant except in the older wounds and when extremely hypertonic solutions were used, in which instances it was greater.

When gauze dressings were used the innermost layers were markedly decreased in their hypertonicity. When there was the least bit of bloody ooze from the wound, the two inner gauze layers were quite isotonic and hence valueless in extracting fluid.

In evaluating the efficacy of the hypertonic wet dressing the author arrives at several conclusions. It is shown that the fluid withdrawn is water and not serum, and that the water comes from the capillaries and the value of this withdrawal seems to be a debatable question. Also the tissues absorb enough salt (except when using the lower concentration of magnesium sulphate) to keep the wound quite edematous. It is possible that the increased flow of water brings an increased number of phagocytes. The hypertonic solution reaches only the superficial tissues. The chief benefit by far seems to be the poulticing action, in keeping the skin soft and pliable and in preventing crusting which impedes drainage. Its greatest value is in increasing the flow of capillary blood. The author concludes

that the most beneficial results might be expected from a sixteen per cent magnesium sulphate solution.

## UROLOGY

By TOM R. BARRY, M.D., F.A.C.S.  
Medical Building, Knoxville

The Present Status of Prostatic Resection. R. V. Day.  
J. Urology. November, 1935.

Experience, skill, judgment, and diligence in preoperative and postoperative management, etc., are factors affecting the mortality and morbidity rate. While prostatic resection has its dangers, drawbacks, defects, and shortcomings, it also has its advantages in selected cases, and should be employed only in its legitimate field.

The outstanding claim for resection has been that the hospitalization period is shortened. With some cases, this is true, with others it is noticeably prolonged. First of all, the preoperative preparation is the same, whether resection or prostatectomy is performed. Some cases require repeated resection, some have edema of the bladder neck, which requires prolonged indwelling catheters, others have secondary hemorrhage of varying degrees, all of which prolong hospitalization.

An outstanding indictment against resection employed for large prostates is its general unreliability, in uncertainty of results, repeated resections and high incidence of post-resection infections, and morbidity. The structural and functional results are not always satisfactory. Dysuria persists in many.

Unfortunately many patients have had resections performed with only small residual and incipient hypertrophy. Such patients are better left alone, until such operative procedures are indicated. This class of patients reflect discredit on the method. Many of the statistical figures include a large percentage of just such cases.

In sclerotic prostates, bars, and contractures, many cases of cancer of the prostate and post-prostatectomy tags, resection is indicated. In other types of prostatic obstruction, prostatic enucleation is the operation of choice.



# 1935 MEMBERS OF THE TENNESSEE STATE MEDICAL ASSOCIATION

The following list of members of the Tennessee State Medical Association is published primarily for the purpose of detecting errors. It includes the names of those who were members on December 15, 1935.

Members are listed under the counties wherein they reside; if membership is held in another county, a note

to that effect follows the name of the member.

Names of members who have died during the year are listed separately.

If any errors are found, kindly report them to THE JOURNAL, 510 Doctors Building, Nashville. Your cooperation will be appreciated.

|                                                                                                                                                                                                     |                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ANDERSON COUNTY</b><br><i>Andersonville</i><br>W. L. Carden<br><i>Briceville</i><br>W. B. Barton<br><i>Clinton</i><br>O. E. Balloe<br>J. S. Hall<br>H. D. Hicks<br>J. Sam Taylor<br>C. B. Tucker | R. L. Hyder<br>G. D. Lequire<br>W. B. Lovingood<br>E. H. Lowe<br>J. A. McCulloch<br>Lester C. Olin<br>C. C. Vinsant<br>F. A. Zoller<br><i>Townsend</i><br>E. W. Griffin<br><i>Walland</i><br>J. N. Norton<br>James M. Waters | M. B. McCrary<br>mbr. Rutherford Co.<br><b>CARROLL COUNTY</b><br><i>Bruceston</i><br>L. E. Trevathan<br><i>Clarksburg</i><br>R. B. Wilson<br><i>Huntingdon</i><br>Roy A. Douglass<br>V. E. Massey<br><i>McKenzie</i><br>E. Marvin Alexander<br>Harry L. Alexander<br>A. C. Elinor<br>J. H. Williams | <i>Friendship</i><br>W. H. Stallings<br><b>CUMBERLAND COUNTY</b><br><i>Crossville</i><br>V. O. Buttram<br>J. B. Henderson<br>V. L. Lewis<br>W. R. McCamey<br>E. W. Mitchell<br><b>DAVIDSON COUNTY</b><br><i>Bordenux, Rt. 6</i><br>H. B. Brackin<br><i>Brentwood</i><br>Fred E. Hasty<br><i>Donelson</i><br>E. E. Anderson<br>Perry Priest<br><i>Goodlettsville</i><br>S. J. Fentress<br>E. O. Jenkins<br><i>Madison</i><br>M. A. Beasley,<br>mbr. Maury Co.<br>George A. Droll<br>M. B. Garner<br>R. Z. Linnev<br>E. A. Sutherland<br>Lew Ernest Wallace | E. W. Cocke, mbr.<br>Fayette-Hardeman<br>County<br>W. J. Core<br>Sam Cowan<br>Henry M. Cox<br>James A. Crabtree<br>R. R. Crowe<br>Carl R. Crutchfield<br>Hale E. Cullom<br>M. M. Cullom<br>J. W. T. Dobbs<br>Murray B. Davis<br>T. W. Davis<br>Wm. A. Demonbreun<br>R. C. Derivaux<br>Paul DeWitt<br>W. C. Dixon<br>Beverly Douglas<br>H. L. Douglas<br>Bate Dozier<br>Robt. L. Dozier, Jr.<br>L. W. Edwards<br>Phillip C. Elliott<br>A. L. Erwin<br>Duncan Eve, Jr.<br>Herschel Ezell<br>W. Scott Farmer<br>Walter O. Faught<br>Joe W. Fenn<br>W. F. Fessey<br>W. O. Floyd<br>R. E. Fort<br>Dewey Foster<br>J. J. Frey<br>Thos. Fearn Frist<br>Joseph F. Gallagher<br>J. C. Gardner<br>Hamilton V. Gayden<br>L. R. Gayden<br>Horace C. Gayden<br>Joe D. Goodwin<br>E. L. Gleeves<br>C. G. Griffin<br>V. H. Griffin<br>R. W. Grizzard<br>H. Claude Guerin<br>W. W. Haggard<br>David W. Hailey<br>Y. W. Halev<br>C. M. Hamilton<br>J. W. Handv<br>W. M. Hardy<br>A. W. Harris<br>Tinsley R. Harrison<br>O. S. Hawk<br>Jas. T. Hayes<br>R. N. Herbert<br>J. B. Hibbett, Jr.<br>C. L. Hill<br>J. Harvill Hite<br>G. W. Holcomb<br>A. N. Hollabaugh, Jr.<br>Chas. F. Hollabaugh<br>W. W. Hubbard<br>Daniel Jay Johns, Jr.<br>Edgar Jones<br>R. L. Jones<br>Geo. S. Johnson<br>Hollis E. Johnson<br>J. P. Keller<br>W. G. Kennon<br>Howard King<br>R. K. Landis<br>Leon M. Lanier<br>W. P. Law<br>W. S. Leathers<br>John M. Lee<br>Jas. D. Lester<br>Milton S. Lewis<br>John J. Lentz<br>Wm. Litterer<br>L. S. Love | Walter M. Lott<br>Earl C. Lowry<br>Frank H. Luton<br>Travis Henry Martin<br>W. D. Martin<br>Robt. H. Magruder<br>Guy Milford Maness<br>J. Owsley Manier<br>W. M. McCabe<br>C. C. McClure<br>Thos. D. McKinney<br>C. S. McMurray<br>Henry E. Meleney<br>Cleo M. Miller<br>Theodore Morford, Jr.<br>E. Hugh Morgan<br>Walter M. Morgan<br>P. G. Morrissey<br>M. K. Moulder<br>John J. Mullenwey<br>D. R. Neil<br>Oscar G. Nelson<br>Adam G. Niebol<br>O. A. Oliver<br>Eugene Orr<br>John Overton<br>W. P. Parker<br>Edna S. Pennington<br>J. C. Pennington<br>D. R. Pickens<br>Cobb Pilcher<br>Edward Plotkin<br>Leonard Pogue<br>T. G. Pollard<br>Bruce P'Pool<br>Paul E. Purks<br>James Seay Read<br>E. M. Regen<br>H. P. Rieger<br>Elkin Lanier Rippy<br>S. S. Riven<br>E. P. Robbins<br>E. L. Roberts<br>Howard C. Robertson<br>Miller Robinson<br>S. T. Ross<br>B. T. Rucks<br>John M. Saunders<br>E. A. Sayers<br>George F. Seeman<br>D. C. Seward<br>Trimble Sharber<br>N. S. Shofner<br>H. H. Shoulders<br>H. S. Shoulders<br>Ammie T. Sikes<br>Daugh W. Smith<br>Henry Carroll Smith<br>J. S. Smith<br>Herman Spitz<br>John W. Stevens<br>Robt. E. Sullivan<br>W. Albert Sullivan<br>W. D. Sumpter<br>W. Houston Tanksley<br>S. R. Teachout<br>Pauline Tenzel<br>A. B. Thatch<br>C. S. Thomas<br>H. M. Tigert<br>W. O. Tirrill, Jr.<br>C. C. Trabue<br>Joseph Travenkin, Jr.<br>R. O. Tucker<br>Wm. O. Vaughan<br>Paul L. Warner<br>R. J. Warner<br>J. T. Watkins<br>Albert Weinstein<br>Samuel H. White<br>T. A. Whitfield<br>W. W. Wilkerson, Jr.<br>Owen H. Wilson<br>Jack Witherspoon<br>W. H. Witt<br>R. E. Wyatt | John B. Youmans<br>T. Hugh Young<br>Kate Savage Zerfoss<br>Thomas B. Zerfoss<br><i>Old Hickory</i><br>T. W. Dailey<br>R. A. Daniel<br>Alvin Hawkins<br>E. P. Johnson<br>Ogle Jones<br>E. B. Rhea<br><b>DECATUR COUNTY</b><br><i>Decaturville</i><br>J. L. McMillan<br><b>DE KALB COUNTY</b><br><i>Alexandria</i><br>C. C. Young,<br>mbr. Wilson Co.<br><i>Smithville</i><br>L. D. Allen,<br>mbr. Wilson Co.<br>G. M. Allison,<br>mbr. White Co.<br><b>DICKSON COUNTY</b><br><i>Charlotte</i><br>L. F. Loggins<br><i>Cumberland</i><br><i>Farnace</i><br>W. M. Cunningham<br><i>Dickson</i><br>R. P. Beasley<br>W. J. Sugg<br>Hartwell Weaver<br><i>White Bluffs</i><br>H. P. Spencer<br><b>DYER COUNTY</b><br><i>Dyersburg</i><br>E. H. Baird<br>J. Paul Baird<br>J. P. Baird<br>J. B. Berry<br>J. D. Brewer<br>Percy Conyers<br>C. L. Denton<br>J. A. Ledbetter<br>B. G. Marr<br>A. H. Moody<br>C. T. Nash<br>J. G. Price<br>C. A. Turner<br>N. S. Walker<br>W. P. Watson<br><i>Finley</i><br>J. T. Freeman<br>Luther Edwards<br><i>Newbern</i><br>John Frazier<br>Luther Hall<br>E. T. Haskins<br>J. W. Wynne<br><i>Tigrett</i><br>P. E. Miller<br><b>FAYETTE COUNTY</b><br><i>Bruden</i><br>J. C. Rice<br><i>Gallaway</i><br>W. B. Battle |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                     |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                  |                                                                                                                                                                                                           |                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                 |                                                                                                                                                  |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Moscow</i><br>M. B. Feenster     | <i>Pulaski</i><br>J. K. Blackburn<br>Thos. F. Booth<br>A. W. Deane<br>E. M. Fuqua<br>F. C. Gaines<br>F. B. Hulme<br>W. J. Johnson<br>John H. Morris<br>J. U. Speer<br>R. E. Warren | A. W. Gross<br>J. I. Hamilton<br>H. H. Hampton<br>E. M. Harrison<br>Frank Harris<br>John B. Haskins<br>Chas. R. Henry<br>H. P. Hewitt<br>Homer D. Hickey<br>J. M. Higginbotham<br>W. J. Hillas<br>John W. Hocker<br>J. McC. Hogshead<br>O. G. Hughes<br>D. Ishell<br>Burton L. Jacobs<br>Franklin Johnson<br>J. P. Johnson<br>J. W. Johnson<br>Joe Killebrew<br>H. P. Larimore<br>Chester L. Lassiter<br>Hiram A. Laws<br>Stewart Lawwill<br>Philip H. Levinson<br>H. D. Long<br>S. H. Long<br>E. H. Magee<br>S. S. Marchbanks<br>Fred E. Marsh<br>J. B. McGhee<br>Fred C. McIsaacs<br>J. D. L. McPheeters<br>M. A. Meacham<br>J. E. Nelson<br>Cecil E. Newell<br>E. Dunbar Newell<br>E. T. Newell<br>Cleo Parcel<br>A. M. Patterson<br>J. B. Phillips<br>W. D. L. Record<br>W. A. Reed<br>F. E. Reisman<br>Herman Renner<br>J. H. Revinston<br>J. A. Reynolds<br>G. Madison Roberts<br>Robt. C. Robertson<br>W. J. Sheridan<br>Leonold Shumacker<br>J. A. Smith<br>Harold J. Starr<br>John B. Steele<br>Willard Steele<br>Wm. G. Stephenson<br>John A. Steward<br>J. B. Swafford<br>J. Hamilton Taylor<br>Chas. Robt. Thomas<br>Wm. E. Van Order<br>Raymond Wallace<br>Dan N. Williams<br>G. Victor Williams<br>W. J. Winter | J. W. Erwin,<br>mbr. Giles Co.<br>J. V. Hughes, Jr.<br>O. H. Williams                                                                                                                                                                                                                                      | <b>HAYWOOD<br/>COUNTY</b><br><i>Brownsville</i><br>Jno. M. Chambers<br>T. C. Chapman<br>R. T. Keeton<br>Roy M. Lanier<br>G. G. Mulherin<br>John Munal<br>W. D. Poston<br>Glen T. Scott<br>A. H. Sorrelle<br>John Thornton                                               | <i>Whiteville</i><br>John D. Quarles                                                                                                                                                                                                                      | <b>JEFFERSON<br/>COUNTY</b><br><i>Jefferson City</i><br>T. A. Caldwell<br>P. E. Parker,<br>mbr. Monroe Co.<br>T. E. Wright<br><i>Strauberry Plains</i><br>R. M. Webster<br><i>White Pine</i><br>Y. Alvin Jackson                                                                                                                                      | Jacob R. Hamilton<br>B. I. Hamilton<br>Louis A. Haun<br>George Henson<br>Jesse C. Hill<br>Oliver W. Hill<br>Victor Hill<br>S. H. Hodge<br>V. D. Holloway<br>A. G. Hufstедler<br>C. B. Jones<br>Thomas R. Jones<br>L. C. Jackson<br>J. H. Keeling<br>A. G. Kern<br>J. H. Kincaid<br>H. L. Kitts<br>A. Hobart Lancaster<br>Robert P. Layman<br>R. B. Lavman<br>Marshall J. Lea<br>N. E. Leake<br>Robert S. Leach<br>Forest S. Letellier<br>H. C. Long<br>Walter Luttrell<br>Wm. N. Lvn<br>H. H. McCampbell<br>T. L. McCarter<br>H. T. McClain<br>W. C. McClain<br>R. F. McCrary<br>J. D. McCullough<br>Richard McIlwaine<br>R. L. McReynolds<br>S. R. Miller<br>Ralph Monger<br>Chas. F. Mooney<br>John D. Moore<br>Owen Moore<br>J. P. Morrow<br>J. B. Naive<br>W. S. Nash<br>J. B. Neil<br>Eugene P. Nicely<br>R. P. Oppenheimer<br>Nichols Pannas<br>Reese Patterson<br>R. F. Patterson, Jr.<br>F. O. Pearson<br>Jarrell Penn<br>H. Dewey Peters<br>H. L. Peters<br>S. B. Peters<br>S. Joe Platt<br>Herbert L. Pope<br>W. W. Potter<br>R. M. Powell<br>Hugh Reaves<br>Robt. G. Reaves<br>A. L. Rule<br>W. D. Richards<br>M. S. Roberts<br>Olin Rodgers<br>W. A. Shelton<br>Andrew Smith<br>Joe T. Smith<br>Rufus Smith<br>Vernon I. Smith<br>G. W. Smithers<br>John R. Smoot<br>G. W. Stone<br>R. G. Tappan<br>G. W. Tharpe<br>Phillip C. Thomas<br>Goe W. Trotter<br>R. G. Waterhouse<br>Alvin Weber<br>Fred West<br>J. Q. A. West<br>Geo. T. Wilhelm<br>G. A. Williamson<br>E. G. Wood<br>R. B. Wood<br>W. P. Wood<br>R. M. Young<br>E. Russell Zemp | <b>LAWRENCE<br/>COUNTY</b><br><i>Iron City</i><br>C. C. Hardison<br><i>Lawrenceburg</i><br>V. H. Crowder<br>J. W. Danley<br>J. A. Gallaher<br>L. C. Harris<br>C. C. Stockard<br>T. J. Stockard<br><i>Loretto</i><br>A. D. Cole<br>E. H. Ethridge | <b>LEWIS COUNTY</b><br><i>Hohenwald</i><br>G. N. Springer<br>Paul Wylie                                                                                                                                   | <b>LAUDERDALE<br/>COUNTY</b><br><i>Halls</i><br>Wm. Hall<br>J. G. Olds<br><i>Henaiaa</i><br>T. F. Pipkin<br><i>Ripley</i><br>J. L. Dunavant<br>R. B. Griffin<br>J. B. Lackey<br>J. R. Lewis<br>T. E. Miller<br>J. H. Nunn | <b>LINCOLN COUNTY</b><br><i>Blinche</i><br>John W. Maddox<br><i>Elorn</i><br>A. L. Griffith<br><i>Fayetteville</i><br>H. K. Alexander<br>M. F. Brown<br>J. D. Bryant<br>W. F. Cannon<br>C. L. Goodrich<br>D. T. Hardin<br>R. E. McCown<br>J. V. McRady<br>J. M. McWilliams<br>T. A. Patrick<br>A. L. Yearwood<br><i>Mulberry</i><br>R. T. Odum<br><i>Petersburg</i><br>J. E. Sloan |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                 |                                                                                                                                                  |
| <i>Oaklaad</i><br>L. D. McAuley     | <i>Rossville</i><br>F. K. West                                                                                                                                                     | <i>Somerville</i><br>H. L. Armstrong<br>Jno. K. Crawford<br>John W. Morris<br>J. E. Parks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>GREENE COUNTY</b><br><i>Greeneville</i><br>J. B. Bell<br>F. C. Britton<br>S. T. Brumley<br>L. E. Coolidge<br>R. S. Cowles<br>N. H. Crews<br>L. E. Dyer<br>Claude P. Fox, Jr.<br>C. P. Fox, Sr.<br>Haskell W. Fox<br>C. B. Laughlin<br>W. T. Mathes<br>I. E. Phillips                                    | <b>GRUNDY COUNTY</b><br><i>Palmer</i><br>O. H. Clements<br><i>Pelham</i><br>U. B. Bowden<br><i>Monteagle</i><br>D. H. Bryan<br>W. A. Jackson<br>Thos. F. Taylor                                                                                                         | <b>HAMBLETON<br/>COUNTY</b><br><i>New Market</i><br>R. R. Roach<br><i>Morristown</i><br>P. L. Brock<br>J. F. Campbell<br>L. F. Henderson<br>L. W. Nabers<br>R. F. Painter<br>F. A. Purvis<br>D. R. Roach<br>S. M. Ryburn<br>D. E. Shields<br>W. E. Howell | <b>HARDENMAN<br/>COUNTY</b><br><i>Bolivar</i><br>R. L. Cobb<br>C. L. Frost<br>O. L. Hill<br>B. F. McAnulty<br>A. L. Richards<br>L. D. Wright<br><i>Graad Junction</i><br>Leon Pope<br>E. R. Timmons<br><i>Middletoa</i><br>J. Y. Alexander<br><i>Silerton</i><br>W. H. Siler<br><i>Toone</i><br>T. B. Bradford<br><i>Whiteville</i><br>G. T. Brinkley | <b>HARDIN COUNTY</b><br><i>Morris Chapel</i><br>Jas. Hickman Taylor<br><i>Saltillo</i><br>L. A. Parker<br><i>Savannah</i><br>R. J. De Ford<br>O. C. Doty                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>HICKMAN<br/>COUNTY</b><br><i>Coaterville</i><br>John S. Beasley<br>W. D. Cagle,<br>mbr. Wilson Co.<br>W. K. Edwards<br>C. V. Stephenson<br><i>Lyles</i><br>H. E. Paty<br><i>Only</i><br>L. F. Prichard                                        | <b>HUMPHREYS<br/>COUNTY</b><br><i>Waverly</i><br>H. C. Capps<br>W. W. Slayden<br><i>McEwen</i><br>J. A. Sugg                                                                                              | <b>JACKSON COUNTY</b><br><i>Gainesboro</i><br>Frank B. Clark<br>P. E. Faed<br>R. C. Gaw                                                                                                                                   | <b>JEFFERSON COUNTY</b><br><i>Jefferson City</i><br>T. A. Caldwell<br>P. E. Parker,<br>mbr. Monroe Co.<br>T. E. Wright<br><i>Strauberry Plains</i><br>R. M. Webster<br><i>White Pine</i><br>Y. Alvin Jackson                                                                                                                                                                       | <b>JOHNSON<br/>COUNTY</b><br><i>Kingsport</i><br>Frank Alloway<br>R. T. Childress<br>E. M. Corns<br>L. C. Cox<br>Paul W. Cox<br>E. O. Denew<br>Fred M. Duckwell<br>L. L. Highsmith<br>J. Vernon Hodge<br>G. G. Keener<br>Thomas T. McNeer<br>A. D. Miller<br>W. J. Murphy<br>W. B. Payne<br>W. H. Reed<br>C. F. N. Schram<br>H. S. Scott<br>E. W. Tinton<br>W. A. Wiley<br>T. B. Yaney<br><i>Mountain City</i><br>Robt. O. Glenn | <b>KNOX COUNTY</b><br><i>Byiatgoa</i><br>A. R. Garrison<br><i>Coacord</i><br>M. F. Cobb<br><i>Fouataia City</i><br>Carl R. Martin<br>J. M. Van De Griff<br><i>Inskip</i><br>J. B. Parker<br><i>Knoxville</i><br>Eugene Abercrombie<br>Herbert Acuff<br>Eben Alexander<br>Chas. Armstrong<br>W. S. Austin<br>Troy P. Bagwell<br>C. E. Barnette<br>Tom R. Barry<br>M. L. Black<br>W. A. Bois<br>E. L. Bishop, mbr.<br>Davidson Co.<br>R. G. Brashears<br>Horace E. Brown<br>P. H. Cardwell<br>H. L. Carroll<br>Robert Lee Carter<br>B. B. Cates<br>C. J. Carmichael<br>J. Morgan Clark<br>Edward S. Clayton<br>Chas. F. Clayton<br>H. E. Christenberry<br>W. F. Christenberry<br>C. L. Chumley<br>K. C. Copenhavner<br>M. M. Copenhavner<br>H. K. Cunningham<br>Williams R. Cross<br>V. C. Dail<br>R. V. Depue<br>W. T. De Sautelle<br>W. F. Dorsey<br>J. Gilbert Eblen<br>E. M. Edington<br>W. H. Enneis<br>Frank Faulkner<br>Edgar H. Ford<br>H. M. Francisco<br>P. J. Gambill<br>J. H. Gammon<br>J. J. Greer<br>Edgar L. Grubb<br>Glen D. Grubb<br>E. A. Guynes | <b>LAKE COUNTY</b><br><i>Ridgely</i><br>W. S. Alexander<br>R. E. Hellen<br>W. L. Summer<br><i>Tiptonville</i><br>R. W. Griffin<br>Jas. P. Moon<br>R. C. Newkirk                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>MADISON<br/>COUNTY</b><br><i>Bells</i><br>Elizha Farrow<br>S. E. McDonald<br><i>Bemis</i><br>J. G. Cottongin<br>Kelly Smyth<br>H. E. Whitlock                |                                                                                                                                                  |
| <i>Little Crab</i><br>J. C. Bertram | <i>Jaestown</i><br>John Perry Sloan                                                                                                                                                | <i>Wilder</i><br>C. A. Collins                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>FRANKLIN<br/>COUNTY</b><br><i>Cowan</i><br>Wm. Brewer<br><i>Decherd</i><br>W. F. Smith<br><i>Huatland</i><br>B. W. Sutton<br><i>Sevacaee</i><br>John M. Hardy<br>R. M. Kirby Smith<br><i>Sherwood</i><br>Geo. E. Bogart<br><i>Winchester</i><br>W. E. Lindsay<br>Alfred Parker Smith<br>L. A. Templeton | <b>GREENE COUNTY</b><br><i>Greeneville</i><br>J. B. Bell<br>F. C. Britton<br>S. T. Brumley<br>L. E. Coolidge<br>R. S. Cowles<br>N. H. Crews<br>L. E. Dyer<br>Claude P. Fox, Jr.<br>C. P. Fox, Sr.<br>Haskell W. Fox<br>C. B. Laughlin<br>W. T. Mathes<br>I. E. Phillips | <b>GRUNDY COUNTY</b><br><i>Palmer</i><br>O. H. Clements<br><i>Pelham</i><br>U. B. Bowden<br><i>Monteagle</i><br>D. H. Bryan<br>W. A. Jackson<br>Thos. F. Taylor                                                                                           | <b>HAMBLETON<br/>COUNTY</b><br><i>New Market</i><br>R. R. Roach<br><i>Morristown</i><br>P. L. Brock<br>J. F. Campbell<br>L. F. Henderson<br>L. W. Nabers<br>R. F. Painter<br>F. A. Purvis<br>D. R. Roach<br>S. M. Ryburn<br>D. E. Shields<br>W. E. Howell                                                                                             | <b>HARDENMAN<br/>COUNTY</b><br><i>Bolivar</i><br>R. L. Cobb<br>C. L. Frost<br>O. L. Hill<br>B. F. McAnulty<br>A. L. Richards<br>L. D. Wright<br><i>Graad Junction</i><br>Leon Pope<br>E. R. Timmons<br><i>Middletoa</i><br>J. Y. Alexander<br><i>Silerton</i><br>W. H. Siler<br><i>Toone</i><br>T. B. Bradford<br><i>Whiteville</i><br>G. T. Brinkley                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>HARDIN COUNTY</b><br><i>Morris Chapel</i><br>Jas. Hickman Taylor<br><i>Saltillo</i><br>L. A. Parker<br><i>Savannah</i><br>R. J. De Ford<br>O. C. Doty                                                                                         | <b>HICKMAN<br/>COUNTY</b><br><i>Coaterville</i><br>John S. Beasley<br>W. D. Cagle,<br>mbr. Wilson Co.<br>W. K. Edwards<br>C. V. Stephenson<br><i>Lyles</i><br>H. E. Paty<br><i>Only</i><br>L. F. Prichard | <b>HUMPHREYS<br/>COUNTY</b><br><i>Waverly</i><br>H. C. Capps<br>W. W. Slayden<br><i>McEwen</i><br>J. A. Sugg                                                                                                              | <b>JACKSON COUNTY</b><br><i>Gainesboro</i><br>Frank B. Clark<br>P. E. Faed<br>R. C. Gaw                                                                                                                                                                                                                                                                                            | <b>JEFFERSON COUNTY</b><br><i>Jefferson City</i><br>T. A. Caldwell<br>P. E. Parker,<br>mbr. Monroe Co.<br>T. E. Wright<br><i>Strauberry Plains</i><br>R. M. Webster<br><i>White Pine</i><br>Y. Alvin Jackson                                                                                                                                                                                                                     | <b>JOHNSON<br/>COUNTY</b><br><i>Kingsport</i><br>Frank Alloway<br>R. T. Childress<br>E. M. Corns<br>L. C. Cox<br>Paul W. Cox<br>E. O. Denew<br>Fred M. Duckwell<br>L. L. Highsmith<br>J. Vernon Hodge<br>G. G. Keener<br>Thomas T. McNeer<br>A. D. Miller<br>W. J. Murphy<br>W. B. Payne<br>W. H. Reed<br>C. F. N. Schram<br>H. S. Scott<br>E. W. Tinton<br>W. A. Wiley<br>T. B. Yaney<br><i>Mountain City</i><br>Robt. O. Glenn                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>KNOX COUNTY</b><br><i>Byiatgoa</i><br>A. R. Garrison<br><i>Coacord</i><br>M. F. Cobb<br><i>Fouataia City</i><br>Carl R. Martin<br>J. M. Van De Griff<br><i>Inskip</i><br>J. B. Parker<br><i>Knoxville</i><br>Eugene Abercrombie<br>Herbert Acuff<br>Eben Alexander<br>Chas. Armstrong<br>W. S. Austin<br>Troy P. Bagwell<br>C. E. Barnette<br>Tom R. Barry<br>M. L. Black<br>W. A. Bois<br>E. L. Bishop, mbr.<br>Davidson Co.<br>R. G. Brashears<br>Horace E. Brown<br>P. H. Cardwell<br>H. L. Carroll<br>Robert Lee Carter<br>B. B. Cates<br>C. J. Carmichael<br>J. Morgan Clark<br>Edward S. Clayton<br>Chas. F. Clayton<br>H. E. Christenberry<br>W. F. Christenberry<br>C. L. Chumley<br>K. C. Copenhavner<br>M. M. Copenhavner<br>H. K. Cunningham<br>Williams R. Cross<br>V. C. Dail<br>R. V. Depue<br>W. T. De Sautelle<br>W. F. Dorsey<br>J. Gilbert Eblen<br>E. M. Edington<br>W. H. Enneis<br>Frank Faulkner<br>Edgar H. Ford<br>H. M. Francisco<br>P. J. Gambill<br>J. H. Gammon<br>J. J. Greer<br>Edgar L. Grubb<br>Glen D. Grubb<br>E. A. Guynes | <b>LAKE COUNTY</b><br><i>Ridgely</i><br>W. S. Alexander<br>R. E. Hellen<br>W. L. Summer<br><i>Tiptonville</i><br>R. W. Griffin<br>Jas. P. Moon<br>R. C. Newkirk | <b>MADISON<br/>COUNTY</b><br><i>Bells</i><br>Elizha Farrow<br>S. E. McDonald<br><i>Bemis</i><br>J. G. Cottongin<br>Kelly Smyth<br>H. E. Whitlock |
| <i>Aspen Hill</i><br>G. C. Grimes   | <i>Bethel</i><br>L. A. Edmondson                                                                                                                                                   | <i>Lynaville</i><br>Joe B. Wright                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>GILES COUNTY</b><br><i>Aspen Hill</i><br>G. C. Grimes<br><i>Bethel</i><br>L. A. Edmondson<br><i>Lynaville</i><br>Joe B. Wright<br><i>Minor Hill</i><br>A. N. Doyle                                                                                                                                      | <b>GREENE COUNTY</b><br><i>Greeneville</i><br>J. B. Bell<br>F. C. Britton<br>S. T. Brumley<br>L. E. Coolidge<br>R. S. Cowles<br>N. H. Crews<br>L. E. Dyer<br>Claude P. Fox, Jr.<br>C. P. Fox, Sr.<br>Haskell W. Fox<br>C. B. Laughlin<br>W. T. Mathes<br>I. E. Phillips | <b>GRUNDY COUNTY</b><br><i>Palmer</i><br>O. H. Clements<br><i>Pelham</i><br>U. B. Bowden<br><i>Monteagle</i><br>D. H. Bryan<br>W. A. Jackson<br>Thos. F. Taylor                                                                                           | <b>HAMBLETON<br/>COUNTY</b><br><i>New Market</i><br>R. R. Roach<br><i>Morristown</i><br>P. L. Brock<br>J. F. Campbell<br>L. F. Henderson<br>L. W. Nabers<br>R. F. Painter<br>F. A. Purvis<br>D. R. Roach<br>S. M. Ryburn<br>D. E. Shields<br>W. E. Howell                                                                                             | <b>HARDENMAN<br/>COUNTY</b><br><i>Bolivar</i><br>R. L. Cobb<br>C. L. Frost<br>O. L. Hill<br>B. F. McAnulty<br>A. L. Richards<br>L. D. Wright<br><i>Graad Junction</i><br>Leon Pope<br>E. R. Timmons<br><i>Middletoa</i><br>J. Y. Alexander<br><i>Silerton</i><br>W. H. Siler<br><i>Toone</i><br>T. B. Bradford<br><i>Whiteville</i><br>G. T. Brinkley                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>HARDIN COUNTY</b><br><i>Morris Chapel</i><br>Jas. Hickman Taylor<br><i>Saltillo</i><br>L. A. Parker<br><i>Savannah</i><br>R. J. De Ford<br>O. C. Doty                                                                                         | <b>HICKMAN<br/>COUNTY</b><br><i>Coaterville</i><br>John S. Beasley<br>W. D. Cagle,<br>mbr. Wilson Co.<br>W. K. Edwards<br>C. V. Stephenson<br><i>Lyles</i><br>H. E. Paty<br><i>Only</i><br>L. F. Prichard | <b>HUMPHREYS<br/>COUNTY</b><br><i>Waverly</i><br>H. C. Capps<br>W. W. Slayden<br><i>McEwen</i><br>J. A. Sugg                                                                                                              | <b>JACKSON COUNTY</b><br><i>Gainesboro</i><br>Frank B. Clark<br>P. E. Faed<br>R. C. Gaw                                                                                                                                                                                                                                                                                            | <b>JEFFERSON COUNTY</b><br><i>Jefferson City</i><br>T. A. Caldwell<br>P. E. Parker,<br>mbr. Monroe Co.<br>T. E. Wright<br><i>Strauberry Plains</i><br>R. M. Webster<br><i>White Pine</i><br>Y. Alvin Jackson                                                                                                                                                                                                                     | <b>JOHNSON<br/>COUNTY</b><br><i>Kingsport</i><br>Frank Alloway<br>R. T. Childress<br>E. M. Corns<br>L. C. Cox<br>Paul W. Cox<br>E. O. Denew<br>Fred M. Duckwell<br>L. L. Highsmith<br>J. Vernon Hodge<br>G. G. Keener<br>Thomas T. McNeer<br>A. D. Miller<br>W. J. Murphy<br>W. B. Payne<br>W. H. Reed<br>C. F. N. Schram<br>H. S. Scott<br>E. W. Tinton<br>W. A. Wiley<br>T. B. Yaney<br><i>Mountain City</i><br>Robt. O. Glenn                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>KNOX COUNTY</b><br><i>Byiatgoa</i><br>A. R. Garrison<br><i>Coacord</i><br>M. F. Cobb<br><i>Fouataia City</i><br>Carl R. Martin<br>J. M. Van De Griff<br><i>Inskip</i><br>J. B. Parker<br><i>Knoxville</i><br>Eugene Abercrombie<br>Herbert Acuff<br>Eben Alexander<br>Chas. Armstrong<br>W. S. Austin<br>Troy P. Bagwell<br>C. E. Barnette<br>Tom R. Barry<br>M. L. Black<br>W. A. Bois<br>E. L. Bishop, mbr.<br>Davidson Co.<br>R. G. Brashears<br>Horace E. Brown<br>P. H. Cardwell<br>H. L. Carroll<br>Robert Lee Carter<br>B. B. Cates<br>C. J. Carmichael<br>J. Morgan Clark<br>Edward S. Clayton<br>Chas. F. Clayton<br>H. E. Christenberry<br>W. F. Christenberry<br>C. L. Chumley<br>K. C. Copenhavner<br>M. M. Copenhavner<br>H. K. Cunningham<br>Williams R. Cross<br>V. C. Dail<br>R. V. Depue<br>W. T. De Sautelle<br>W. F. Dorsey<br>J. Gilbert Eblen<br>E. M. Edington<br>W. H. Enneis<br>Frank Faulkner<br>Edgar H. Ford<br>H. M. Francisco<br>P. J. Gambill<br>J. H. Gammon<br>J. J. Greer<br>Edgar L. Grubb<br>Glen D. Grubb<br>E. A. Guynes | <b>LAKE COUNTY</b><br><i>Ridgely</i><br>W. S. Alexander<br>R. E. Hellen<br>W. L. Summer<br><i>Tiptonville</i><br>R. W. Griffin<br>Jas. P. Moon<br>R. C. Newkirk | <b>MADISON<br/>COUNTY</b><br><i>Bells</i><br>Elizha Farrow<br>S. E. McDonald<br><i>Bemis</i><br>J. G. Cottongin<br>Kelly Smyth<br>H. E. Whitlock |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                       |                                                                |                                                                                                          |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                |                                                                                                                                                                                     |                                                          |                                     |                                     |                               |                                                                                                                                           |                                                                           |                                   |                             |                                   |                                                                                                                           |                                                                   |                                  |                                                      |                               |                                                                                                                                                                                                                |                                 |                              |                                                          |                                 |                                   |                               |                                                                                                                                                                 |                                                                                                                                               |                                |                              |                                                    |                                                                                                                     |                                                                             |                                                      |                                |                                               |                                |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------|-------------------------------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|-----------------------------------|-----------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------|------------------------------------------------------|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|------------------------------|----------------------------------------------------------|---------------------------------|-----------------------------------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|------------------------------|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|------------------------------------------------------|--------------------------------|-----------------------------------------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------|
| <b>Gadsden</b><br>F. C. James                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Mt. Pleasant</b><br>G. C. English<br>J. H. Jones<br>W. H. Kittrell<br>Chas. D. Walton<br>Leon Ward | <b>Selmer</b><br>G. B. Curry<br>H. C. Sanders<br>John R. Smith | <b>ROANE COUNTY</b><br><b>Harriman</b><br>H. M. Carr<br>W. W. Hill<br>L. A. Killeffer<br>F. A. Neergaard | <b>SHELBY COUNTY</b><br><b>Brunswick</b><br>C. C. Chaffee | C. H. Glover<br>A. M. Goltman<br>D. W. Goltman<br>J. O. Gordon<br>H. B. Gotten<br>W. H. Gragg<br>H. D. Gray<br>L. M. Graves<br>W. R. Graves<br>E. R. Hall<br>E. C. Ham<br>J. F. Hamilton<br>J. A. Hanna<br>B. F. Hardin<br>J. H. Harris<br>H. A. Hart<br>C. H. Heacock<br>R. D. Henderson<br>R. G. Henderson<br>M. B. Hendrix<br>R. A. Hennessey<br>D. M. Henning<br>J. P. Henry<br>J. H. Herring<br>J. J. Hobson<br>Eugene H. Holder<br>M. W. Holehan<br>J. E. Holmes<br>A. G. Hudson<br>J. A. Hughes<br>H. G. Hill<br>C. W. Ingle<br>J. L. Jelks<br>L. R. Jelks<br>A. G. Jacobs<br>H. J. Jacobson<br>C. E. James<br>D. H. James<br>J. A. James<br>Geo. P. Jones<br>E. J. Johnson<br>Harry Johnson<br>Max Kaplan<br>Ernest G. Kelly<br>Webb B. Key<br>J. C. King<br>D. P. Kincaid<br>V. D. King<br>T. A. Kirkland<br>Beulah Kittrell<br>mbr. Knox Co.<br>O. M. Laten<br>W. S. Lawrence<br>H. W. Lawrence<br>Gilbert J. Levy<br>Louis Levy<br>A. C. Lewis<br>C. K. Lewis<br>Louis Leroy<br>P. M. Lewis<br>M. D. Lindsey<br>Frank D. Linn<br>E. J. Lipscomb<br>J. H. Lipsey<br>Geo. R. Livermore<br>J. P. Long<br>C. H. Marshall<br>W. H. Lovejoy<br>Chas. R. Mason<br>J. W. Mason<br>Robin F. Mason<br>J. M. Maury<br>Wm. B. Malone<br>Battle Malone, Jr.<br>Robt. Mann<br>T. P. Mangian<br>J. J. McCaugban<br>R. B. McCormick<br>O. S. McCown, Jr.<br>R. S. McDavid<br>J. B. McElroy<br>J. W. McElroy<br>J. A. McIntosh<br>E. E. McKenzie<br>K. Wesley McKinney<br>Richard McKinney<br>A. R. McMahan<br>J. A. McQuiston<br>Sidney Meeker<br>A. H. Meyer<br>R. H. Miller<br>W. D. Mims<br>E. C. Mitchell<br>E. D. Mitchell<br>E. D. Mitchell, Jr.<br>G. T. Mitchell<br>J. I. Mitchell<br>Moore Moore<br>Thomas D. Moore<br>Wallace P. Moore<br>C. H. Morgan<br>J. L. Morgan<br>Henry Moskowitz<br>J. T. Moss<br>T. C. Moss | R. Lyle Motley<br>Francis Murphy<br>G. W. Musgraves<br>R. T. Nowlin<br>J. P. Owens<br>D. W. Oelker<br>C. M. Oberschmidt<br>C. S. Paddock<br>Cleveland Payne<br>R. S. Pearce<br>Geo. E. Paulus<br>W. H. Pistole<br>Cleveland Payne<br>R. S. Pearce<br>Percy A. Perkins<br>C. W. Polk<br>L. R. Polk<br>J. A. Price<br>W. T. Pride<br>H. W. Priddy<br>Leo F. Puratti<br>H. W. Qualls<br>A. G. Quinn<br>J. W. Ragsdale<br>W. E. Ragsdale<br>H. R. Raines<br>S. L. Raines<br>E. C. Ramer<br>G. P. Rawls<br>J. R. Reinberger<br>Alma B. Richards<br>J. W. Riggs<br>J. E. Robinson<br>W. W. Robinson<br>J. H. E. Rosamond<br>Whitman Rowland<br>W. A. Ruch<br>W. L. Rucks<br>H. G. Rudner<br>W. A. Runkle<br>F. B. Russell<br>R. O. Rychener<br>L. C. Sanders<br>R. L. Sanders<br>C. H. Sanford<br>W. T. Satterfield<br>Sam H. Sanders<br>O. A. Schmid<br>P. C. Schriener<br>H. C. Schmeiser<br>M. A. Schmitt<br>L. V. Schmittou<br>M. W. Seagrath<br>M. B. Selegstein<br>R. E. Semmes<br>J. J. Shea<br>S. J. Sibley<br>W. L. Simpson<br>J. H. Smith<br>O. E. Smith<br>F. Ward Smythe<br>Harold A. Sparr<br>J. S. Speed<br>M. G. Spingarn<br>E. A. Stanfield<br>J. B. Stanford<br>Newton S. Stern<br>William D. Stinson<br>J. B. Stone<br>Claude A. Symons<br>B. S. Talley<br>Newman Taylor<br>Morton J. Tendler<br>S. S. Terrell<br>E. G. Thompson<br>Alvin Brush Tripp<br>H. K. Turley<br>B. F. Turner<br>C. C. Turner<br>C. F. Varner<br>S. L. Wadley<br>W. J. Wadlington<br>O. P. Walker<br>Cecil E. Warde<br>O. S. Warr<br>H. C. Watkins<br>Thos. Wells<br>W. L. Wilhelm<br>A. B. Williams<br>S. B. Williamson<br>W. L. Williamson<br>P. H. Wood<br>Louise Powell |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                |                                                                                                                                                                                     |                                                          |                                     |                                     |                               |                                                                                                                                           |                                                                           |                                   |                             |                                   |                                                                                                                           |                                                                   |                                  |                                                      |                               |                                                                                                                                                                                                                |                                 |                              |                                                          |                                 |                                   |                               |                                                                                                                                                                 |                                                                                                                                               |                                |                              |                                                    |                                                                                                                     |                                                                             |                                                      |                                |                                               |                                |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                                                                           |                                                          |                                                       |                                                                        |                                                                                             |                                                                                                                                                                                                                                                       |                                |                          |
| <b>Jackson</b><br>J. G. Anderson<br>B. C. Arnold<br>G. W. Brasher<br>G. H. Berrybill<br>R. S. Brown<br>Swan Burrus<br>J. Lawrence Cochran<br>Tate B. Collins<br>J. L. Crook<br>W. C. Duckworth<br>W. B. Eason<br>W. T. Fitts<br>Earl Goyer<br>Herman Hawkins<br>S. M. Herron<br>Jefferson D. Hopper<br>G. Frank Jones<br>Horace L. Jones<br>J. W. McClaran<br>James Miller<br>S. T. Parker<br>J. E. Powers<br>W. G. Saunders<br>Jack R. Thompson<br>Chas. F. Webb<br>R. B. White<br>G. L. Williamson | <b>Santa Fe</b><br>M. F. Walker                                                                       | <b>Stantonville</b><br>E. G. Sanders                           | <b>OBION COUNTY</b><br><b>Obion</b><br>J. C. Walker                                                      | <b>Collierville</b><br>L. P. Pearce                       | <b>Cordova</b><br>C. A. Chaffee                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Forrest Hill</b><br>Jas. E. Clark                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Memphis</b><br>Sbields Abernathy<br>W. G. Alford<br>C. D. Allen<br>Jacob Alperin<br>E. Lynn Anderson<br>S. B. Anderson<br>W. D. Anderson<br>W. S. Anderson<br>C. G. Andrews<br>J. L. Andrews<br>G. E. Ankerson<br>D. H. Anthony<br>J. M. Aste<br>J. C. Ayres<br>C. O. Bailey<br>L. S. Baskins<br>M. L. Bearden<br>J. L. Beauchamp<br>Chas. A. Bender<br>Wm. R. Bethea<br>J. M. Biggs<br>W. M. Bigbam<br>W. T. Black<br>Sam Blackwell<br>Chas. D. Blasingame<br>A. L. Blecker<br>J. B. Blue<br>W. R. Blue<br>J. W. Bodley<br>Robt. F. Bonner<br>R. L. Bowlin<br>L. F. Boyd<br>J. F. Bradley<br>W. T. Braun<br>Carey Bringle<br>S. N. Brinson<br>J. M. Brockman<br>J. H. Bronstein<br>Samuel Bryan<br>K. M. Buck<br>Geo. H. Burkle<br>W. B. Burns<br>W. C. Campbell<br>E. Guy Campbell<br>D. M. Carr<br>H. R. Carr<br>L. L. Carter<br>W. C. Chaney<br>R. E. Ching<br>J. H. Lipsey<br>W. F. Clary<br>J. D. Cleveland<br>Joe Clifton<br>W. C. Colbert<br>S. W. Coley<br>Casa Collier<br>J. H. Collins<br>E. D. Connell<br>A. F. Cooper<br>G. A. Coors<br>John E. Cox<br>H. F. Crawford<br>J. A. Crisler<br>J. A. Crisler, Jr.<br>C. V. Crowsell<br>Howard Curl<br>G. W. Dabnke<br>R. R. Davenport<br>J. M. Davis<br>V. S. Demarco<br>Harry Dickson<br>John L. Dies<br>W. T. Dinsmore<br>J. M. Dorris<br>J. J. Douglas<br>I. G. Duncan<br>E. G. Ellett<br>C. B. Etter<br>J. D. Evans<br>Sidney S. Evans<br>H. B. Everett<br>P. M. Farrington<br>F. W. Fielder<br>J. B. Fisher<br>R. B. Flaniken<br>J. S. Fleming<br>B. F. Floyd<br>J. H. Francis<br>E. E. Francis<br>J. F. Fraser<br>J. Earl French<br>Geo. Gartley | <b>MONROE COUNTY</b><br><b>Madisonville</b><br>R. C. Kimbrough | <b>Union City</b><br>R. G. Latimer, mbr.<br>Dyer, Lake, and<br>Crockett Co.<br>M. A. Blanton<br>J. D. Carlton<br>Illar Glover<br>W. B. Harrison<br>Frank B. Kinzey<br>D. S. Latimer | <b>ROBERTSON COUNTY</b><br><b>Adams</b><br>J. R. Connell | <b>Cross Plains</b><br>J. W. Thomas | <b>Orlinda</b><br>James P. Anderson | <b>Ridgetop</b><br>W. S. Rude | <b>Springfield</b><br>E. W. Adair<br>W. B. Dye<br>John S. Freeman<br>Will Foster Fyke<br>R. L. Mathews<br>W. W. Porter<br>J. E. Wilkinson | <b>PERRY COUNTY</b><br><b>Clifton</b><br>J. T. Keeton, mbr.<br>5 Co. Soc. | <b>Flatwood</b><br>Wm. Earl Boyce | <b>Linden</b><br>O. A. Kirk | <b>Lobelville</b><br>W. E. Turner | <b>POLK COUNTY</b><br><b>Copper Hill</b><br>W. Y. Gilliam<br>Thos. J. Hicks<br>H. P. Hyde<br>A. W. Lewis<br>C. W. Strauss | <b>Ducktown</b><br>A. J. Guinn<br>H. H. Hyatt, mbr.<br>Shelby Co. | <b>Isabella</b><br>F. O. Geisler | <b>PUTNAM COUNTY</b><br><b>Algood</b><br>J. T. Moore | <b>Baxter</b><br>R. H. Willis | <b>Cookeville</b><br>A. A. Bradley,<br>mbr. White Co.<br>S. O. Davis,<br>mbr. White Co.<br>Lex Dyer<br>W. A. Howard<br>Thurman Shipley<br>Z. L. Shipley<br>H. H. Taylor<br>J. Fred Terry<br>R. L. Witherington | <b>Readyville</b><br>J. D. Hall | <b>Smyrna</b><br>J. M. Shipp | <b>SCOTT COUNTY</b><br><b>New River</b><br>M. F. Frazier | <b>Onvoda</b><br>T. H. Phillips | <b>Robbins</b><br>Pitney Phillips | <b>Winfield</b><br>W. L. Pyle | <b>SEVIER COUNTY</b><br><b>Sevierville</b><br>John A. Conroy<br>R. A. McCall<br>R. C. Kash<br>J. W. Ogle<br>Robt. F. Thomas<br>C. P. Wilson<br>Otha H. Yarberry | <b>McMINN COUNTY</b><br><b>Athens</b><br>W. R. Arrants<br>R. A. Brock<br>H. V. Duboise<br>R. W. Epperson<br>C. O. Foree<br>Jas. R. Nankiville | <b>Benton</b><br>J. H. Lillard | <b>Decatur</b><br>W. J. Abel | <b>Englewood</b><br>D. P. Brendle<br>L. A. Brendle | <b>Etowah</b><br>E. M. Akins<br>S. B. McClary<br>S. Boyd McClary, Jr.<br>S. S. Moore<br>J. O. Nichols<br>L. C. Ogle | <b>MAURICIA COUNTY</b><br><b>Adamsville</b><br>J. H. Curry<br>Frank Sanders | <b>Bethel Springs</b><br>E. E. Basham<br>E. M. Smith | <b>Enville</b><br>J. G. Howell | <b>Finger</b><br>W. M. Barnes<br>N. A. Tucker | <b>Leapwood</b><br>J. B. Eason | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br><b>Belfast</b><br>J. W. Reed, mbr.<br>Bedford Co. | <b>Cornersville</b><br>W. F. Copeland,<br>mbr. Giles Co. | <b>Farmington</b><br>W. T. Sharp,<br>mbr. Bedford Co. | <b>Lewisburg</b><br>J. A. Hardison<br>J. G. Waldrop,<br>mbr. Giles Co. | <b>Petersburg</b><br>W. S. Joplin,<br>mbr. Lincoln Co.<br>J. W. Sutton,<br>mbr. Bedford Co. | <b>MAURIE COUNTY</b><br><b>Columbia</b><br>D. B. Andrews<br>Chas. G. Bowers<br>mbr. Dyer, Lake,<br>Crockett Co.<br>H. C. Busby<br>P. S. Perry<br>Robert Pillow<br>E. M. Ragsdale<br>J. W. Wilks<br>W. K. Sheddan<br>Geo. C. Williamson<br>Watt Yeiser | <b>Hampshire</b><br>W. R. Webb | <b>MAURIE COUNTY</b><br> |

|                                                   |                                                                                                                                                                                                    |                                                                                  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |                                                                                                                                                                         |  |
|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>SMITH COUNTY</b>                               |                                                                                                                                                                                                    | <b>UNICOI COUNTY</b>                                                             |  | <b>WEAKLEY COUNTY</b>                                                                                                                                                                                                                                                                                                                                                                                                                              |  | <b>WILLIAMSON COUNTY</b>                                                                                                                                                |  |
| <i>Brush Creek</i>                                |                                                                                                                                                                                                    | <i>Erwin</i>                                                                     |  | <i>Johnson City</i>                                                                                                                                                                                                                                                                                                                                                                                                                                |  | <i>Franklin</i>                                                                                                                                                         |  |
| A. O. Parker                                      | C. W. Freenor<br>H. S. Smythe<br>P. D. Stout<br>A. K. Turner                                                                                                                                       | W. N. Lackey<br>Homer Reese<br>H. A. Reese<br>C. D. Robbins<br>L. Miller Woodson |  | A. J. Willis<br>Edw. T. Brading<br>G. J. Budd<br>E. E. Byrd<br>G. E. Campbell<br>H. M. Cass<br>C. M. Creech<br>H. B. Cupp<br>E. M. Fleenor<br>C. W. Frierberg<br>Ira M. Gamhill<br>Lee K. Gibson<br>J. L. Hankins<br>N. E. Hartsook<br>U. G. Jones<br>C. H. Kyker<br>E. A. Lodge<br>C. H. Long<br>W. J. Matthews<br>H. D. Miller<br>J. G. Moss<br>Jas. T. McFaddin<br>P. E. Parker<br>Wm. G. Preas<br>Geo. J. Sells<br>J. W. Wallace<br>E. T. West |  | T. W. Fields<br>M. D. Ingram<br>J. E. Taylor<br>Paul W. Wilson<br><br><i>Martin</i><br>R. W. Brandon<br>H. H. Buckley<br>John C. Edmundson<br>E. J. Huey<br>T. B. Wingo |  |
| <i>Carthage</i>                                   |                                                                                                                                                                                                    | <i>Hendersonville</i>                                                            |  | <i>Van Buren County</i>                                                                                                                                                                                                                                                                                                                                                                                                                            |  | <i>Robt. K. Galloway</i>                                                                                                                                                |  |
| W. F. Boze<br>J. E. Fisher<br>R. E. Key           | Bristol, Tenn.<br>Nat. H. Copenhaver<br>Arthur B. English<br>Wm. M. Gammon<br>Arthur Hooks<br>S. E. Masseygill<br>F. L. Moore<br>L. B. Snapp<br>David Townsend<br>D. D. Vance<br>Wm. K. Vande, Jr. | R. N. Buchanan<br>J. H. Stepheus                                                 |  | <i>Spencer</i><br>J. V. Powers, mhr.<br>Warren Co.                                                                                                                                                                                                                                                                                                                                                                                                 |  | Dan German<br>J. W. Greer<br>K. S. Howlett<br>R. H. Hutchison<br>John C. McKissick<br>B. T. Nolen<br>T. C. Rice<br>H. C. Stewart<br>J. O. Walker<br>W. Carter Williams  |  |
| <i>Dixon Springs</i>                              |                                                                                                                                                                                                    | <i>Portland</i>                                                                  |  | <b>WARREN COUNTY</b>                                                                                                                                                                                                                                                                                                                                                                                                                               |  | <b>WHITE COUNTY</b>                                                                                                                                                     |  |
| Rhea E. Garrett                                   | L. Alton Absher<br>C. H. Donoho<br>J. O. Ewert<br>J. M. Oliver<br>E. F. Peden                                                                                                                      | <i>Westmoreland</i>                                                              |  | <i>McMinnville</i>                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | <i>Bon Air</i>                                                                                                                                                          |  |
| <i>Gordonsville</i>                               |                                                                                                                                                                                                    | <i>Tipton County</i>                                                             |  | <i>McMinnville</i>                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | <i>Isaac Barnes</i>                                                                                                                                                     |  |
| J. G. Bridges<br>W. B. Dalton<br>Thayer S. Wilson | J. C. Hutchinson                                                                                                                                                                                   | <i>Atoka</i><br>J. J. Fleming                                                    |  | <i>Warren County</i>                                                                                                                                                                                                                                                                                                                                                                                                                               |  | <i>Doyle</i>                                                                                                                                                            |  |
| <i>Pleasant Shade</i>                             |                                                                                                                                                                                                    | <i>Cornington</i>                                                                |  | <i>McMinnville</i>                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | <i>Quebeck</i>                                                                                                                                                          |  |
| J. J. Beasley                                     | <i>Piney Flats</i><br>Aaron Cole                                                                                                                                                                   | <i>Shouns</i><br>E. Bruce Rhea                                                   |  | <i>Warren County</i>                                                                                                                                                                                                                                                                                                                                                                                                                               |  | <i>Sparta</i>                                                                                                                                                           |  |
| <b>STEWART COUNTY</b>                             |                                                                                                                                                                                                    | <b>SUMNER COUNTY</b>                                                             |  | <i>Waynesboro</i>                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | <i>Watertown</i>                                                                                                                                                        |  |
| <i>Bampus Mills</i>                               |                                                                                                                                                                                                    | <i>Bethpage</i><br>W. W. Roark                                                   |  | <i>Washington County</i>                                                                                                                                                                                                                                                                                                                                                                                                                           |  | <i>Waynesboro</i>                                                                                                                                                       |  |
| A. R. Lee, mhr.<br>Montgomery Co.                 | <i>Castalian Springs</i><br>Humphrey Bate                                                                                                                                                          | <i>Munford</i><br>C. B. Chaffee                                                  |  | <i>Washington County</i>                                                                                                                                                                                                                                                                                                                                                                                                                           |  | <i>Waynesboro</i>                                                                                                                                                       |  |
| <i>Indian Mound</i>                               |                                                                                                                                                                                                    | <i>Trousdale County</i>                                                          |  | <i>Washington County</i>                                                                                                                                                                                                                                                                                                                                                                                                                           |  | <i>Waynesboro</i>                                                                                                                                                       |  |
| C. N. Keatts, mbr.<br>Montgomery Co.              | <i>Gallatin</i><br>I. H. Beasley, mhr.<br>Davidson Co.                                                                                                                                             | <i>Hartsville</i><br>J. J. Gwin, mbr.<br>Sumner Co.                              |  | <i>Waynesboro</i>                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | <i>Waynesboro</i>                                                                                                                                                       |  |
| <b>SULLIVAN COUNTY</b>                            |                                                                                                                                                                                                    | <i>Sumner Co.</i>                                                                |  | <i>Waynesboro</i>                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | <i>Waynesboro</i>                                                                                                                                                       |  |
| <i>Bristol, Va.</i>                               |                                                                                                                                                                                                    | <i>Sumner Co.</i>                                                                |  | <i>Waynesboro</i>                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | <i>Waynesboro</i>                                                                                                                                                       |  |
| Harry W. Bachman<br>T. R. Bowers                  | C. D. Giles<br>H. M. Kelson                                                                                                                                                                        | <i>Sumner Co.</i>                                                                |  | <i>Waynesboro</i>                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | <i>Waynesboro</i>                                                                                                                                                       |  |

## MEMBERS RESIDING OUTSIDE OF TENNESSEE

|                                              |                        |
|----------------------------------------------|------------------------|
| M. E. Blanton                                | Ft. Lyon, Colo.        |
| R. J. Bogan, U. S. Veterans Hospital         | Leavenworth, Kansas    |
| E. E. Carrier                                | Fort Bragg, N. C.      |
| V. A. Fleenor                                | Effingham, S. C.       |
| C. H. Gurney, 5020 1/2 Rossville Blvd.       | Rossville, Ga.         |
| H. E. Handley, 18 Idlewood Road              | White Plains, N. Y.    |
| Geo. A. Hatcher, Essex County Hospital       | Cedar Grove, N. J.     |
| S. E. Johnson                                | Gallup, N. Mex.        |
| Leopold N. Judah, % Health Service           | Urbana, Ill.           |
| D. T. Kimbrough                              | Outwood, Ky.           |
| R. W. Lewis                                  | Kenvir, Ky.            |
| A. B. McCreary, Northampton Health Unit      | Eastville, Va.         |
| S. F. McIntosh, 2646 E. Fifth St.            | Tucson, Ariz.          |
| J. P. McNeil                                 | Dante, Va.             |
| R. M. Moore, University of Missouri          | Columbia, Mo.          |
| Carl Albert Neves, 3315 Fessenden St., N. W. | Washington, D. C.      |
| J. S. Reynolds                               | Fonde, Ky.             |
| Hillis L. Seay                               | Sanatorium, N. C.      |
| J. A. P. Shields                             | Rainbow Springs, N. C. |
| B. T. Terry, Tacoma General Hospital         | Tacoma, Wash.          |
| R. B. Watson, Box 793                        | Tallahassee, Fla.      |
| Olin West, 535 No. Dearborn St.              | Chicago, Ill.          |
| S. F. Weygandt, 809 Grand Blvd.              | St. Louis, Mo.         |
| W. C. Winton, 39 Colorado Blvd.              | Arcadia, Calif.        |
| J. B. Woodruff, 3816 General Pershing St.    | New Orleans, La.       |
| B. L. Wright                                 | Bay Pines, Fla.        |

## LIST OF VETERAN MEMBERS

|                                                   |           |
|---------------------------------------------------|-----------|
| E. C. Anderson, 414 McCallie Ave., Chattanooga    | Hamilton  |
| W. C. Bogart, 518 Georgia Ave., Chattanooga       | Hamilton  |
| Fred B. Stapp, Loveman Bldg., Chattanooga         | Hamilton  |
| J. A. Gentry, Hogshead Apt., Chattanooga          | Hamilton  |
| L. T. Stem, 537 Laurel St., Sarasota, Fla.        | Hamilton  |
| B. S. Wert, Provident Bldg., Chattanooga          | Hamilton  |
| George R. West, Chattanooga Hospital, Chattanooga | Hamilton  |
| Geo. P. Wilbanks, Rossville, Ga.                  | Hamilton  |
| W. K. Sheddian, Columbia                          | Maury     |
| Thos. Henry, Springfield                          | Robertson |
| R. D. Moore, Springfield                          | Robertson |

## DECEASED MEMBERS

|                             |                    |
|-----------------------------|--------------------|
| F. A. McClintock, Newcomb   | Campbell           |
| E. T. Keltz, Tiptonville    | Dyer-Lake-Crockett |
| W. W. Wallace, Bolivar      | Fayette-Hardeman   |
| John P. Grisard, Winchester | Franklin           |
| R. H. Newman, Knoxville     | Knox               |
| R. M. Kendrick, Selmer      | McNairy            |
| Robert Paine, Memphis       | Shelby             |
| J. R. Bone, Lebanon         | Wilson             |
| R. C. Bunting, Memphis      | Shelby             |
| M. L. Bradley, Springfield  | Robertson          |



# INDEX OF VOLUME XXVIII

## SUBJECTS

|                                                                                                                           |                                                          |                                                                                                                       |                                                          |
|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| Abortions, A Review of 292 Cases of Incomplete—D. W. Smith, B.A., M.D., Nashville—                                        | 288                                                      | Day in Court, A—J. K. Hall, M.D., Richmond, Virginia—                                                                 | 14                                                       |
| Abstracts of Current Literature—                                                                                          | 44, 89, 133, 170, 213, 267, 311, 357, 400, 442, 484, 519 | Deaths—                                                                                                               | 40, 129, 164, 206, 261, 307, 356, 396, 437, 478, 515     |
| Action of the House of Delegates of the American Medical Association in Extraordinary Session—                            | 125                                                      | Diagnosis and Treatment of Intestinal Obstruction—Ernest G. Kelly, M.D., F.A.C.S., Memphis—                           | 423                                                      |
| Acute Abdomen in Children—Philip Barbour, M.D., Louisville, Kentucky—                                                     | 217                                                      | Discussion of Some of the More Common Skin Diseases, A—C. M. Hamilton, M.D., Nashville—                               | 77                                                       |
| Allergy to Ophthalmology, The Relation of—Kate Savage Zerfoss, M.D., Nashville—                                           | 93                                                       | Disturbances of the Labyrinth Causing Vertigo and Nausea—R. G. Reaves, M.D., Knoxville—                               | 278                                                      |
| American Medical Association, Action of the House of Delegates of the, in Extraordinary Session—                          | 125                                                      | Diverticulitis of the Colon—C. H. Heacock, M.D., Memphis—                                                             | 416                                                      |
| American Medical Association, Official Statement to the House of Delegates, by the Board of Trustees—                     | 118                                                      | Dwarfism, Renal—Philip C. Elliott, M.D., Nashville—                                                                   | 386                                                      |
| American Medical Association, Report of Tennessee Delegates to the, Cleveland Session, June, 1934—                        | 179                                                      | Eclampsia, Management of Puerperal, in the Home—K. S. Howlett, M.D., Franklin—                                        | 22                                                       |
| Analysis of Abdominal Pain—A. L. Rule, M.D., Knoxville—                                                                   | 105                                                      | Ectopic Pregnancy—George R. McSwain, M.D., F.A.C.S., Paris—                                                           | 296                                                      |
| Back, A Pathological Basis for the Disabled—George K. Carpenter, M.D., F.A.C.S., Nashville—                               | 8                                                        | Editorials—                                                                                                           | 38, 82, 115, 161, 201, 261, 302, 352, 395, 432, 475, 513 |
| Bile Passages in the Jaundiced Patient, Surgery of the, (With Case Reports)—W. O. Floyd, B.S., M.D., F.A.C.S., Nashville— | 191                                                      | Emphysema, The Clinical and Rehabilitation Aspects of—Kennon Dunham, M.D., Cincinnati, Ohio—                          | 284                                                      |
| Black Widow Spider Bite: Report of Four Cases—Joe B. Wright, M.D., Lynnville—                                             | 6                                                        | Failing Heart, The—C. B. Laughlin, M.D., Greeneville—                                                                 | 361                                                      |
| Botulism—J. Lawrence Cochran, B.S., M.D., Jackson—                                                                        | 338                                                      | Fractures, Open Wounds Including Compound—C. F. Webb, M.D., Jackson—                                                  | 458                                                      |
| Brain Injuries—Their Management—Thomas D. McKinney, M.D., F.A.C.S., Nashville—                                            | 449                                                      | Fracture of the Spine and Pelvis—R. Wallace Billington, M.D., F.A.C.S., Nashville—                                    | 453                                                      |
| Brucella Infection—W. R. Blue, M.D., Memphis—                                                                             | 365                                                      | Further Report on the Surgical Treatment of Retinal Detachment—R. O. Rychener, M.D., and E. C. Ellett, M.D., Memphis— | 348                                                      |
| Children, Acute Abdomen in—Philip Barbour, M.D., Louisville, Kentucky—                                                    | 217                                                      | Gastric Secretion, Clinical Application of Some Recent Studies—Lay Martin, M.D., Baltimore, Maryland—                 | 403                                                      |
| Children of Interest to the General Practitioner, Urological Problems in—George R. Livermore, M.D., F.A.C.S., Memphis—    | 391                                                      | General Consideration of Diseases of the Thyroid Gland, A—N. S. Shofner, M.D., Nashville—                             | 110                                                      |
| Children, Purulent Pleuritis in—Oliver W. Hill, M.D., Knoxville—                                                          | 1                                                        | Germany's Mistakes, Will America Copy?—Gustav Hartz—                                                                  | 146                                                      |
| Cleveland Session, Report of Tennessee Delegates to the American Medical Association, June, 1934—                         | 179                                                      | Gibson County, Study of Maternity Care in—Maxwell E. Lapham, M.D.—                                                    | 223                                                      |
| Cholecystitis, Indications for Operation in Cases of—H. H. Shoulders, M.D., F.A.C.S., Nashville—                          | 68                                                       | Health Insurance, Its History and General Trend—Theodore Morford, M.D., Nashville—                                    | 53                                                       |
| Clinical Application of Some Recent Studies on Gastric Secretion—Lay Martin, M.D., Baltimore, Maryland—                   | 403                                                      | Heart Disease and Pregnancy—W. D. Strayhorn, M.D., Norris—                                                            | 492                                                      |
| Clinical and Rehabilitation Aspects of Emphysema, The—Kennon Dunham, M.D., Cincinnati, Ohio—                              | 284                                                      | Heart, The Failing—C. B. Laughlin, M.D., Greeneville—                                                                 | 361                                                      |
| Colon, Diverticulitis of the—C. H. Heacock, M.D., Memphis—                                                                | 416                                                      | Heart, Hypertensive; The Most Common Form of So-Called Chronic Myocarditis—E. A. Guynes, M.D., Knoxville—             | 100                                                      |
| Conservation of Motherhood—J. C. Ayres, M.D., F.A.C.S., Memphis—                                                          | 80                                                       | House of Delegates of the American Medical Association in Extraordinary Session, Action of the—                       | 125                                                      |
|                                                                                                                           |                                                          | House of Delegates, Index to Proceedings—                                                                             | 337                                                      |
|                                                                                                                           |                                                          | House of Delegates of the American Medical Association by the Board of Trustees, Official Statement to the—           | 118                                                      |

|                                                                                                                                                                        |     |                                                                                                                                                                      |                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| House of Delegates of the Tennessee State Medical Association, Proceedings of the, Noel Hotel, Nashville-----                                                          | 315 | Nervous System, Influenza and the — S. T. Rucker, M.D., Memphis -----                                                                                                | 510                                        |
| Hypertensive Heart: The Most Common Form of So-Called Chronic Myocarditis—E. A. Guynes, M.D., Knoxville-----                                                           | 100 | News Notes and Comment-----                                                                                                                                          | 41,                                        |
| Ileus, Paralytic—W. A. Bryan, M.D., Nashville                                                                                                                          | 245 | 84, 130, 164, 210, 261, 310, 398, 438, 481                                                                                                                           |                                            |
| Index to Proceedings of House of Delegates--                                                                                                                           | 337 | Obese, The Problem of the—Edward G. Thompson, A.B., M.D., Memphis-----                                                                                               | 292                                        |
| Indications for Operation in Cases of Cholecystitis—H. H. Shoulders, M.D., F.A.C.S., Nashville -----                                                                   | 68  | Obstruction, Intestinal, with Unusual Complications — J. H. Francis, M.D., F.A.C.S., Memphis -----                                                                   | 250                                        |
| Influenza and the Nervous System — S. T. Rucker, M.D., Memphis-----                                                                                                    | 510 | Occipitoposterior Position, with a Report of 728 Cases, Management of the — Milton Smith Lewis, M.D., Nashville-----                                                 | 499                                        |
| Intestinal Obstruction, Diagnosis and Treatment of—Ernest G. Kelly, M.D., F.A.C.S., Memphis -----                                                                      | 423 | Ocular Tuberculosis — Tuberculin — Robert J. Warner, M.D., Phar.D., F.A.C.S., Nashville--                                                                            | 376                                        |
| Intestinal Obstruction with Unusual Complications — J. H. Francis, M.D., F.A.C.S., Memphis -----                                                                       | 250 | Official Statement to the House of Delegates of the American Medical Association by the Board of Trustees -----                                                      | 118                                        |
| Introduction of a New Quantitative Complement Fixation System for Syphilis with Reference to Older Systems — Charles G. Ransom, Nashville -----                        | 62  | Open Wounds Including Compound Fractures —C. F. Webb, M.D., Jackson -----                                                                                            | 458                                        |
| Labyrinth Causing Vertigo and Nausea, Disturbances of the — R. G. Reaves, M. D., Knoxville -----                                                                       | 278 | Ophthalmology, The Relation of Allergy to—Kate Savage Zerfoss, M.D., Nashville-----                                                                                  | 93                                         |
| List of Officers of the Tennessee State Medical Association -----                                                                                                      | 42, | Optic Atrophy Due to Chiasmal Tumor—Ralph O. Rychener, A.B., M.D., Memphis-----                                                                                      | 20                                         |
| 88, 132, 168, 207, 259, 308, 355, 397, 436, 479,                                                                                                                       | 518 | Other Medical Societies-----                                                                                                                                         | 86, 131, 166, 212, 264, 356, 441, 483, 519 |
| Lobar Pneumonia (With Report of Cases)—S. J. Fentress, M.D., Goodlettsville-----                                                                                       | 239 | Pain, Analysis of Abdominal—A. L. Rule, M.D., Knoxville -----                                                                                                        | 105                                        |
| Management of Puerperal Eclampsia in the Home—K. S. Howlett, M.D., Franklin-----                                                                                       | 22  | Paralytic Ileus—W. A. Bryan, M.D., Nashville                                                                                                                         | 245                                        |
| Management of the Occipitoposterior Position, with a Report of 728 Cases—Milton Smith Lewis, M.D., Nashville-----                                                      | 499 | Pathological Basis for the Disabled Back, A —George K. Carpenter, M.D., F.A.C.S., Nashville -----                                                                    | 8                                          |
| Mastoiditis, Some Diseases Resulting from Obscure Sinusitis and, Which Are Usually Treated by the Family Physician, or Pediatrician—N. E. Hartsook, M.D., Johnson City | 252 | Pathological Uterine Bleeding—W. C. Dixon, M.D., F.A.C.S., Nashville-----                                                                                            | 410                                        |
| Medical Profession and the Public, The Mutual Obligations of the—N. S. Skofner, M.D., Nashville -----                                                                  | 487 | Pediatrician, Some Diseases Resulting from Obscure Sinusitis and Mastoiditis Which Are Usually Treated by the Family Physician or—N. E. Hartsook, M.D., Johnson City | 252                                        |
| Medical Profession and the Tennessee Emergency Relief Administration, The-----                                                                                         | 305 | Pelvis, Fracture of the Spine and—R. Wallace Billington, M.D., F.A.C.S., Nashville-----                                                                              | 453                                        |
| Medical School in Attempts to Ameliorate Present Conditions in the Practice of Medicine, The Place of the—O. W. Hyman, Ph.D., Memphis -----                            | 187 | Place of the Medical School in Attempts to Ameliorate Present Conditions in the Practice of Medicine — O. W. Hyman, Ph.D., Memphis -----                             | 187                                        |
| Medical Societies -----                                                                                                                                                | 43, | Pneumonia, Lobar, (With Report of Cases)—S. J. Fentress, M.D., Goodlettsville-----                                                                                   | 239                                        |
| 85, 130, 164, 211, 262, 310, 356, 398, 439, 481,                                                                                                                       | 516 | Physical Therapy in Medicine, The Role of—A. J. Kotkis, M.D., St. Louis, Missouri----                                                                                | 175                                        |
| Membership Roster -----                                                                                                                                                | 522 | Pregnancy, Ectopic — George R. McSwain, M.D., F.A.C.S., Paris -----                                                                                                  | 296                                        |
| Meningitis, Treatment of Epidemic—R. B. Wood, M.D., Knoxville-----                                                                                                     | 471 | Pregnancy, Heart Disease and—W. D. Strayhorn, M.D., Norris-----                                                                                                      | 492                                        |
| Motherhood, Conservation of—J. C. Ayres, M.D., F.A.C.S., Memphis-----                                                                                                  | 80  | Preliminary Management of the Seriously Injured—Duncan Eve, Jr., M.D., Nashville----                                                                                 | 445                                        |
| Mutual Obligations of the Medical Profession and the Public, The—N. S. Shofner, M.D., Nashville -----                                                                  | 487 | Presidential Address, Some Observations Concerning the Problems of Medicine in Tennessee—J. O. Manier, M.D., Nashville-----                                          | 137                                        |
| Nervous Patient—Jesse C. Hill, M.D., Knoxville -----                                                                                                                   | 107 | Presidential Address—Arthur G. Jacobs, M.D., Memphis -----                                                                                                           | 344                                        |
|                                                                                                                                                                        |     | Problems of Medicine in Tennessee, Some Observations Concerning the, Presidential Address—J. O. Manier, M.D., Nashville-----                                         | 137                                        |
|                                                                                                                                                                        |     | Problem of the Obese, The—Edward G. Thompson, A.B., M.D., F.A.C.P., Memphis-----                                                                                     | 292                                        |



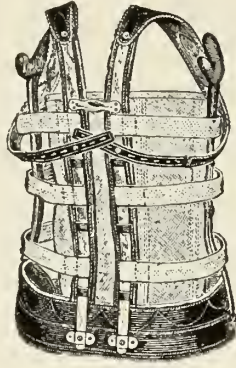
|                                                                                                                                                                      |                    |                                                                                                                           |                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| Proceedings of the House of Delegates of the Tennessee State Medical Association, Noel Hotel, Nashville, Tennessee-----                                              | 315                | Urinary Urobilinogen: Value of Routine Estimation—P. H. Levinson, M.D., Chattanooga                                       | 17                                             |
| Purulent Pleuritis in Children—Oliver W. Hill, M.D., Knoxville-----                                                                                                  | 1                  | Urological Problems in Children of Interest to the General Practitioner—George R. Livermore, M.D., F.A.C.S., Memphis----- | 391                                            |
| Relation of Allergy to Ophthalmology, The—Kate Savage Zerfoss, M.D., Nashville-----                                                                                  | 93                 | Uterine Bleeding, Pathological—W. C. Dixon, M.D., F.A.C.S., Nashville-----                                                | 410                                            |
| Renal Dwarfism — Philip C. Elliott, M.D., Nashville -----                                                                                                            | 386                | Version, Its Indications and Advantages—G. W. Stone, M.D., Knoxville-----                                                 | 382                                            |
| Report of Delegates to the American Medical Association, The Cleveland Session—June, 1934 -----                                                                      | 179                | Vomiting in Young Babies—O. H. Wilson, M.D., Nashville -----                                                              | 74                                             |
| Resolutions -----                                                                                                                                                    | 206, 261, 356, 437 | What Shall We Do About X-ray Negative Pulpless Tooth?—A. J. Cottrell, D.D.S., F.A.C.D., Knoxville -----                   | 198                                            |
| Retinal Detachment, A Further Report on the Surgical Treatment of—R. O. Rychener, M.D., and E. C. Ellett, M.D., Memphis-----                                         | 348                | Will America Copy Germany's Mistakes?—Gustav Hartz -----                                                                  | 146                                            |
| Role of Physical Therapy in Medicine, The—A. J. Kotkis, M.D., St. Louis, Missouri-----                                                                               | 175                | Woman's Auxiliary -----                                                                                                   | 40, 84, 129, 162, 208, 266, 309, 437, 480, 515 |
| Shock, Traumatic—Percy A. Perkins, M.D., F.A.C.S., Memphis -----                                                                                                     | 461                | X-ray As an Aid to the General Practitioner, The—Hugh G. Reaves, M.D., Knoxville----                                      | 271                                            |
| Sinusitis and Mastoiditis Which Are Usually Treated by the Family Physician or Pediatrician, Some Diseases Resulting from Obscure—N. E. Hartsook, M.D., Johnson City | 252                |                                                                                                                           |                                                |
| Skin Diseases, A Discussion of Some of the More Common—C. M. Hamilton, M.D., Nashville -----                                                                         | 77                 |                                                                                                                           |                                                |
| Some Diseases Resulting from Obscure Sinusitis and Mastoiditis Which Are Usually Treated by the Family Physician or Pediatrician—N. E. Hartsook, M.D., Johnson City  | 252                |                                                                                                                           |                                                |
| Spider Bite, Black Widow: Report of Four Cases—Joe B. Wright, M.D., Lynnville-----                                                                                   | 6                  |                                                                                                                           |                                                |
| Spine and Pelvis, Fracture of the—R. Wallace Billington, M.D., F.A.C.S., Nashville-----                                                                              | 453                |                                                                                                                           |                                                |
| Study of Maternity Care in Gibson County—Maxwell E. Lapham, M.D.-----                                                                                                | 223                |                                                                                                                           |                                                |
| Surgery of the Bile Passages in the Jaundiced Patient (With Case Reports)—W. O. Floyd, B.S., M.D., F.A.C.S., Nashville-----                                          | 191                |                                                                                                                           |                                                |
| Sympathetic Nervous System, Tumors of the—Dean Lewis, M.D., Baltimore, Maryland--                                                                                    | 47                 |                                                                                                                           |                                                |
| Syphilis with Reference to Older Systems, An Introduction of a New Quantitative Complement Fixation System for—Charles G. Ransom, Nashville -----                    | 62                 |                                                                                                                           |                                                |
| Tennessee Emergency Relief Administration, The Medical Profession and the-----                                                                                       | 305                |                                                                                                                           |                                                |
| Thyroid Gland, A General Consideration of Diseases of the—N. S. Shofner, M.D., Nashville -----                                                                       | 110                |                                                                                                                           |                                                |
| Tooth, Pulpless, What Shall We Do About X-ray Negative — A. J. Cottrell, D.D.S., F.A.C.D., Knoxville -----                                                           | 198                |                                                                                                                           |                                                |
| Traumatic Shock — Percy A. Perkins, M.D., F.A.C.S., Memphis -----                                                                                                    | 461                |                                                                                                                           |                                                |
| Treatment of Epidemic Meningitis—R. B. Wood, M.D., Knoxville -----                                                                                                   | 471                |                                                                                                                           |                                                |
| Tuberculosis, Ocular—Tuberculin—Robert J. Warner, M.D., Phar.D., F.A.C.S., Nashville                                                                                 | 376                |                                                                                                                           |                                                |
| Tumors of the Sympathetic Nervous System—Dean Lewis, M.D., Baltimore, Maryland--                                                                                     | 47                 |                                                                                                                           |                                                |

## AUTHORS

|                                                                                                                                          |     |
|------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Ayres, J. C., M.D., F.A.C.S., Memphis—"Conservation of Motherhood"-----                                                                  | 80  |
| Barbour, Philip, M.D., Louisville, Kentucky—"Acute Abdomen in Children"-----                                                             | 217 |
| Billington, R. Wallace, M.D., F.A.C.S., Nashville—"Fracture of the Spine and Pelvis"--                                                   | 453 |
| Blue, W. R., M.D., Memphis—"Brucella Infection" -----                                                                                    | 365 |
| Bryan, W. A., M.D., Nashville—"Paralytic Ileus" -----                                                                                    | 245 |
| Buchner, Edward F., M.D., Chattanooga—"Undistorted Radiography in Obstetrics"--                                                          | 30  |
| Carpenter, George K., M.D., F.A.C.S., Nashville—"A Pathological Basis for the Disabled Back" -----                                       | 8   |
| Cochran, J. Lawrence, B.S., M.D., Jackson—"Botulism" -----                                                                               | 338 |
| Cottrell, A. J., D.D.S., F.A.C.D., Knoxville—"What Shall We Do About X-Ray Negative Pulpless Tooth?" -----                               | 198 |
| Dixon, W. C., M.D., F.A.C.S., Nashville—"Pathological Uterine Bleeding"-----                                                             | 410 |
| Dunham, Kennon, M.D., Cincinnati, Ohio—"The Clinical and Rehabilitation Aspects of Emphysema" -----                                      | 284 |
| Ellett, E. C., M.D., Memphis, and R. O. Rychener, M.D., Memphis—"A Further Report on the Surgical Treatment of Retinal Detachment" ----- | 348 |
| Elliott, Philip C., M.D., Nashville — "Renal Dwarfism" -----                                                                             | 386 |
| Eve, Duncan, Jr., M.D., Nashville—"The Preliminary Management of the Seriously Injured" -----                                            | 445 |
| Fentress, S. J., M.D., Goodlettsville—"Lobar Pneumonia (With Report of Cases)"-----                                                      | 239 |
| Floyd, W. O., B.S., M.D., F.A.C.S., Nashville—"Surgery of the Bile Passages in the Jaundiced Patient (With Case Reports)"-----           | 191 |

- Francis, J. H., M.D., F.A.C.S., Memphis—"Intestinal Obstruction with Unusual Complications" ----- 250
- Guynes, E. A., M.D., Knoxville—"Hypertensive Heart, the Most Common Form of So-Called Chronic Myocarditis"----- 100
- Hall, J. K., M.D., Richmond, Virginia—"A Day in Court" ----- 14
- Hamilton, C. M., M.D., Nashville—"A Discussion of Some of the More Common Skin Diseases" ----- 77
- Hartsook, N. E., M.D., Johnson City — "A Group of Diseases Dependent upon Paranasal Sinusitis as the Cause"----- 32
- 45—Med. Jour.—16701 ----- Chilcote
- Hartsook, N. E., M.D., Johnson City—"Some Diseases Resulting from Obscure Sinusitis and Mastoiditis Which Are Usually Treated by the Family Physician or Pediatrician"-- 252
- Hartz, Gustav — "Will America Copy Germany's Mistakes?" ----- 146
- Heacock, C. H., M.D., Memphis—"Diverticulitis of the Colon"----- 416
- Hill, Jesse C., M.D., Knoxville—"The Nervous Patient" ----- 107
- Hill, Oliver W., M.D., Knoxville — "Purulent Pleuritis in Children" ----- 1
- Howlett, K. S., M.D., Franklin—"Management of Puerperal Eclampsia in the Home" 22
- Hyman, O. W., Ph.D., Memphis—"The Place of the Medical School in Attempts to Ameliorate Present Conditions in the Practice of Medicine" ----- 187
- Jacobs, Arthur G., M.D., Memphis—"Presidential Address" ----- 344
- Kelly, Ernest G., M.D., F.A.C.S., Memphis—"Diagnosis and Treatment of Intestinal Obstruction" ----- 423
- Kotkis, A. J., M.D., St. Louis, Missouri—"The Role of Physical Therapy in Medicine"---- 175
- Lapham, Maxwell E., M.D.,—"Study of Maternity Care in Gibson County" ----- 223
- Laughlin, C. B., M.D., Greeneville—"The Failing Heart" ----- 361
- Levinson, P. H., M.D., Chattanooga—"Urinary Urobilinogen: Value of Routine Estimation" 17
- Lewis, Dean, M.D., Baltimore, Maryland—"Tumors of the Sympathetic Nervous System" ----- 47
- Lewis, Milton Smith, M.D., Nashville—"Management of the Occipitoposterior Position, with a Report of 728 Cases"----- 499
- Livermore, George R., M.D., F.A.C.S., Memphis—"Abdominal Pain After a Symptom Referable to the Kidney"----- 27
- Livermore, George R., M.D., F.A.C.S., Memphis—"Urological Problems in Children of Interest to the General Practitioner"----- 391
- Manier, J. O., M.D., Nashville—"Some Observations Concerning the Problems of Medicine in Tennessee" (Presidential Address)----- 137
- Martin, Lay, M.D., Baltimore, Maryland—"Clinical Application of Some Recent Studies on Gastric Secretion" ----- 403
- Morford, Theodore, M.D., Nashville—"Health Insurance, Its History and General Trend" 53
- McKinney, Thomas D., M.D., F.A.C.S., Nashville—"Brain Injuries—Their Management" 449
- McSwain, George R., M.D., F.A.C.S., Paris—"Ectopic Pregnancy" ----- 296
- Perkins, Percy A., M.D., F.A.C.S., Memphis—"Traumatic Shock" ----- 461
- Ransom, Charles G., Nashville—"An Introduction of a New Quantitative Complement Fixation System for Syphilis with Reference to Older Systems"----- 62
- Reaves, Hugh G., M.D., Knoxville — "The X-Ray as an Aid to the General Practitioner" 271
- Reaves, R. G., M.D., Knoxville—"Disturbances of the Labyrinth Causing Vertigo and Nausea" ----- 278
- Rucker, S. T., M.D., Memphis—"Influenza and the Nervous System"----- 510
- Rule, A. L., M.D., Knoxville — "Analysis of Abdominal Pain"----- 105
- Rychener, Ralph O., A.B., M.D., Memphis—"Optic Atrophy Due to Chiasmal Tumor"-- 20
- Rychener, R. O., M.D., Memphis, and E. C. Ellett, M.D., Memphis—"A Further Report on the Surgical Treatment of Retinal Detachment" ----- 348
- Shofner, N. S., M.D., Nashville—"A General Consideration of Diseases of the Thyroid Gland" ----- 110
- Shofner, N. S., M.D., Nashville—"The Mutual Obligations of the Medical Profession and the Public" ----- 487
- Shoulders, H. H., M.D., F.A.C.S., Nashville—"Indications for Operation in Cases of Cholecystitis" ----- 68
- Smith, D. W., B.A., M.D., Nashville—"A Review of 292 Cases of Incomplete Abortions" 288
- Stone, G. W., M.D., Knoxville—"Version—Its Indications and Advantages"----- 382
- Strayhorn, W. D., M.D., Norris — "Heart Disease and Pregnancy" ----- 492
- Thompson, Edward G., A.B., M.D., F.A.C.P., Memphis—"The Problem of the Obese"----- 292
- Warner, Robert J., M.D., Phar.D., F.A.C.S., Nashville—"Ocular Tuberculosis—Tuberculin" ----- 376
- Webb, C. F., M.D., Jackson—"Open Wounds Including Compound Fractures"----- 458
- Wilson, O. H., M.D., Nashville—"Vomiting in Young Babies" ----- 74
- Wood, R. B., M.D., Knoxville—"Treatment of Epidemic Meningitis"----- 471
- Wright, Joe B., M.D., Lynnville — "Black Widow Spider Bite: Report of Four Cases" 6
- Zerfoss, Kate Savage, M.D., Nashville—"The Relation of Allergy to Ophthalmology"----- 93





H-185



## SPECIAL ATTENTION

—given to the selection and fitting for your patients of Orthopedic Appliances.

Our long experience in the manufacture of braces enables us to help you solve your problems in working out mechanical aid for your patients.

We appreciate your coöperation, and know you will like our service.

153 FOURTH AVENUE, NORTH  
NASHVILLE, TENN.

**THEO. TAFEL CO.**

**A**S YOUR PROFESSIONAL reputation is affected by every examination you make and every pair of lenses you prescribe, protect yourself by giving your patients only the best lenses that will faithfully reproduce the findings of your examinations. Milwide corrected curve lenses will assure you of accurate Rx's. They are built on scientific base curves, corrected for marginal errors, and pitched polished to finish free from aberration, pits and scratches.

**JOHN S. MILAM OPTICAL COMPANY**  
NASHVILLE, TENNESSEE







41A3727





